The Builder.

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Studio of Mr. James Tissot, Château de Buillon, France.—Mr. J. M. Brydon, F.R.I.B.A., Architect .....*Double-Page Photo-Litho.*

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A Proposed New Art.

AN immense concourse of visitors occupied St. James's Hall on Thursday evening last week, in response to the invitation of Mr. and Mrs. Wallace Rimington to a conversazione for the purpose of exhibiting what professes to be nothing less than an introduction to a new mode of artistic expression. This is perhaps the only occasion on record when a deliberate attempt has been made by an individual experimenter to inaugurate a new art; and on this account alone such an event ought not to be passed over without due attention, though perhaps we may doubt whether any form of art which has obtained general acceptance with mankind has ever really been set going by individual experiment and persuasion. The evolution of all existing forms of art has been the result of slow and tentative processes extending over many generations. Rome was not built in a day, and new arts do not spring up in a moment at the bidding of any self-conscious contrivance. We can hardly fancy the arts of architecture or music having been started at an evening lecture.

Still there is this to be said for Mr. Wallace Rimington's demonstration, that it is a first attempt to put into definite form an idea which has been floating in men's minds more or less for a good many years past. The idea is that a form of artistic expression and creation might arise from changes and combinations of colours in movement and succession, and in obedience to a principle of rhythm and harmonic relation. That some such form of art may be possible, and may be capable of very high development in the future, is an old idea with us, long before the inditing of the passage from a contemporary writer which Mr. Rimington quoted in support of his position. But it is of little use to try to force it. No man, we might even say no generation, can say deliberately "we will make a new art." A new application of an existing art may be made by individual genius, but a new art takes time to grow, and will not be hurried.

Nor do we think Mr. Rimington is quite on the right track, although the pains and expense which he has given to the practical elucidation of his theory deserve more serious recognition than they seem to have received. Various daily papers have reported on the meeting, in a spirit of curiosity, but we have not observed that any attempt has been made to consider seriously the principle of treating colour which was proposed, or the mechanical means for carrying it out.

Mr. Rimington has been attracted, as others have been, by a certain physical analogy between the proportionate vibrations or wave-velocities in colour and those in musical tones. He fortifies himself by quotations from various scientific exponents of the physics of colour—Ganot, Herschell, Tyndall, &c. — in the idea that there is a direct analogy between the musical scale and the colour spectrum. "A red light is due to a comparatively long undulation and corresponds to a deep sound; while a violet light is due to a short undulation and corresponds to an acuter sound" (Ganot). He quotes Dr. Babbitt (on "Light and Colour") to the effect that it has been demonstrated by spectrum analysis that there are new octaves of colour above the violet rays, "just as high octaves of musical tones are a repetition of the lower ones." Herschell had suggested the same idea in remarking that there was a tendency to redness in the extreme violet end of the spectrum, as if this were the commencement of a fresh spectrum series which was beyond our powers of vision. In other words, we can hear several octaves of tones, we can only see one octave of colour, but the proportionate series might be seen to repeat themselves if our vision were capable of greater delicacy of perception.

All this seems rather too much a mixture of fancy with science. Ganot's assertion that red corresponds with a low tone and violet with a high tone, is merely true in the physical sense that the vibrations of violet are nearly (not exactly) double those of red, as the vibrations of the upper octave note are exactly double those of the next lower octave; to say that there is any correspondence in an æsthetic sense is merely an assumption of individual feeling. And even in the physical sense, the mere fact that the correspondence is not quite exact is enough to put one on one's guard against pushing the analogy too far. The red end of the spectrum, according to the table supplied by Mr. Rimington as an appendix to his printed lecture, gives vibrations which are to those of the ultra-violet end as 99·0 to 189·3. This is supposed to correspond with the relation between the lower note of a musical octave and the last note before reaching the upper octave—*i.e.*, between any C and the B above it. But the ratios for the musical tones are as 100 to 191·5. The colour scheme is assumed, according to Herschell's suggestion, to begin over again with a new red representing 200, but which we cannot actually see. Even supposing this, however, to be the case, we have 99 to 200 for the colour-octave repetition, and 100 to 200 for the musical one. This is a very slight difference, but in physics we want exact conformity; and it should be borne in mind that, in regard to tones, the physical basis of our musical scale, *so far as it goes* (it does not go nearly so far as is popularly supposed), is precisely exact in its proportions; the vibrations of a note compared with its octave above are precisely as 1 to 2, those between any note and its fifth above are precisely as 2 to 3, and the slightest deviation from these proportions produces the sense of "out of tune." We cannot, so far, find that there is any such precision in regard to the vibrations of colours which are felt to be harmonious or the reverse.

This may be because our eyes are not at present trained as our ears are. But, at all events, we are not in a position to establish close physical analogies between a musical scale and a colour scale. Mr. Rimington's attempt to do this is entirely empirical. He proceeds as if our scale of musical tones rested on a necessary physical basis and proceeds to cut up the colour spectrum into a series of divisions corresponding to the divisions of the musical octave, and arranged so as to present nearly the same ratio in rate of vibration. But the form of our musical scale is quite arbitrary, except in regard to certain landmarks, as they may be called in it, which are fixed by physical conditions. As Dr. Pole has pointed out ("Philosophy of Music"), the number of possible musical tones being practically infinite, no treatment of sound as an art was possible until certain steps in sound had been agreed upon (hence called the "scale" = *scala* = "ladder" of fixed tones) which the ear could easily discriminate. The octave is a physical necessity—a fresh starting-point, where the upper sound is felt

by the ear to be the same as the lower one in an acuter form. But there is no physical basis for the division of the octave into eight degrees. There might have been more; or fewer. Still less is there any reason why a colour scale should be divided in the same way. On the contrary, there seems every reason to think it would be susceptible of much more numerous and delicate divisions than are to be found in the musical scale.

That appears to us to be one mistake at the outset. The manner in which the use of a colour scale was exhibited to the meeting at St. James's Hall was by means of a cleverly-devised "colour organ," played with keys like those of an organ, the effect of which was to throw blended combinations of colours on a white screen hung at the end of the hall; the room, of course, being darkened. The proposed analogy between music and colour was illustrated by pieces of music being played by a band or on the piano, and accompanied by the colour changes on the screen produced by pressing the corresponding keys on the colour organ. The colours produced were often very beautiful, and they certainly, at all events in slow changes, enhanced the effect of the music. But it is of no use to propound to us a new art which can only stand as an accompaniment to another art; and if we had had the colour changes without the musical accompaniment they would have had little interest or meaning.

That is where the ingenious projector has missed another point. He has missed the real analogy between musical art and a possible colour art. To make a colour art which would take its place as a separate art, we must have something analogous to form, besides a mere blending of colours. In music the element of form is supplied by melodic design, and there is nothing analogous to this in Mr. Rimington's colour harmonies. As far as they can be compared with music, his colour changes and combinations resemble, both physically and æsthetically, the kind of musical art which could be produced by mere successions of harmonies without any melodic form at all. That will never do.

The idea which we formed many years ago as to a possible art in combinations of colour was that of what might be called moving symphonies in colour, in which successions of decorative forms, or defined combinations of colour, all subordinate to one main idea, should succeed each other on a screen, in obedience to a rhythm of succession as well as a harmony of design. It would be something like the kaleidoscope carried a great deal further, and regulated by design and not by accident. That an art of this kind will be eventually evolved we feel almost certain, and that it might give scope for effects and beauties almost undreamed of. But there is a long path to traverse before we arrive at anything like that. The first instruments for its production are not even thought of yet.

We may thank Mr. Rimington, however, for giving an impetus to the idea that an art of moving colour is possible, and leading people to think about it; and his colour organ, as far as it goes, is a very ingenious contrivance, of some interest in itself. What we maintain, however, is that he has started on the wrong lines, and such as will hardly lead him to any definite goal. We need make no apology to our readers for touching on the subject here. The idea of an art dealing with colour, and addressed wholly to the sense of sight, is one which must interest all artists; the idea of its being in any way specially connected with music, which is not a subject within our limits, is the accidental result of the manner in which it was regarded and treated by the exponent who called together the meeting; the connexion, as we have shown, is purely arbitrary. That the subject will have interest for some of our readers may be inferred from the presence of a good many well-known architects at Mr. Rimington's demonstration.

THE COMPENSATION TO WORKMEN (ACCIDENTS) BILL.

THE promoters of the Compensation to Workmen (Accidents) Bill can hardly expect, even if it is favourably received by Parliament, that it can become law during the present Session, one which is not likely from various causes to be fruitful in legislation. But this measure, even though it may be regarded rather as an attempt to test public opinion than as a measure which it is seriously intended to push into law at once, deserves the most careful consideration. Its details are few, for it is based on the broad principle that a master is legally and morally bound to compensate a workman when the latter is injured in the course of his employment, save and except only when the workman has been guilty of wilful and deliberate neglect or default. There is a simplicity about this proposed legislation which has much to recommend it, and once the principle of it is allowed to be just and right, there can be no difficulty in carrying out the few necessary details. In the Bill as it stands, the maximum amount of compensation payable in case of death or total disablement is three years' wages, or 150*l.*, whichever sum is the largest. The rates in cases of permanent partial disablement shall, in default of agreement between the parties, be settled by a County Court Judge, but shall not exceed one-half of what would be payable in case of death or permanent disablement. Now, the first point of a practical character which is noticeable in this Bill is, that while it would very largely increase the extent of the employers' responsibility in cases of accidents to his workmen, it would on the other diminish the amount and the uncertainty of the compensation payable. At the present time a master is not liable for mere accidents, but in those cases in which he is under a legal liability, that liability is unlimited: he may have to pay ten pounds or a thousand pounds. It is obvious that the limitation of the amount of compensation is a great advantage to an employer, since it enables him much more easily to safeguard himself against loss by accidents by means of insurance.

We are inclined, therefore, to think that this measure, if it became law, and under certain limitations which will be presently stated, would not enlarge the risks of prudent employers; on the contrary, it would be easier to guard against them. But the question naturally arises, is it desirable that the workman should be thus protected, and that the loss which arises from accidents should in all cases fall first on the shoulders of the employer, and subsequently on those of the consumer? For it is obvious that the cost of insuring against injuries to workmen must become part of the cost of manufacture or production, and that it is the public which in the end pays any increase in the rates of wages or in amounts which are of the same nature. The law has long ago recognised the principle that a master may be responsible for injuries to workmen and to third parties, even though he is personally wholly free from blame. Once this doctrine is recognised, it is doubtful if any practical advantage is to be gained by narrowing its operation. The practice of masters insuring against losses which they may incur by having now, in some cases, to compensate workmen is daily growing. The effect of such a Bill as this becoming law will do no more than increase this practice, and enlarge the already existing legal doctrine of liability. Undoubtedly it is the duty of prudent workmen to insure against accidents, and it is also desirable to make workmen careful in their daily occupation. But it is certain that in no long time the non-liability of the master, which arises from what is known as the doctrine of common employment, will be ended. Mr. Asquith's Bill of last Session would have accomplished this, and it was lost, not in consequence of this proposed change, but because the Home Secretary would not allow workmen to contract themselves out of the Act.

The question then arises, Is there any practical advantage in excluding pure accidents from the category of matters which gave rise to a liability on the part of an employer to compensate a workman? It may fairly be argued that if the master is to have so large a responsibility thrown on him, the workman should not receive the same rate of wages after the law was altered as before. To some extent the rate of wages must depend on the risks of the employment, and if a workman is entitled to receive compensation from his master for any injury which he may receive, unless it be caused by his own "wilful act or wilful default," this is a reason why he should be paid lower wages than if he himself were liable to go without compensation in case of accidents; whether, however, this result would ensue is extremely doubtful. The amount of premium, however, which a master would have to pay to an insurance company if accidents were the subject of compensation would, we imagine, be but little greater than if they were not. When, therefore, we are so near coming to a complete and final measure in regard to the liability of employers for injuries to workmen, we are inclined to think that it would be the most practical solution to include accidents, as is done in the Bill which has been introduced by Mr. Forwood and others. It may be admitted that any such change in the law places workmen in a more favourable position than other members of the community. It is possible that this objection may be met by placing some limitation on the trades and employment in which workmen should receive compensation for accidents as distinguished from acts of negligence on the part of some person in authority over them, or on the part of a fellow servant. As the Bill now stands, the liability of the master is quite unlimited as regards employment. For the Bill applies to men engaged in dangerous trades, and those employed in occupations which may be considered, generally speaking, as free from danger. In any event, the liability of the master to compensate a workman if injured by an accident should be limited, we think, to some extent, according to the character of the work. Otherwise the draughtsman in an architect's office who slips off a chair and injures himself would be as much entitled to compensation as a builder's foreman who falls off a scaffold. This practical example will show the need for some kind of limitation.

The weak spot in the Bill appears to be in the eighth section, which enacts that a workman, or his personal representative, after the occurrence of an injury, and before assenting "by words, writing, or conduct" to claim compensation under this Act, may give written notice to the employer that he does not claim compensation under it. Thereupon he is at liberty to pursue any remedy which he might previously have had. The result of this section would be that if a workman thought he could get more out of an employer by ordinary legal proceedings he would throw the Act overboard. But from what we have already stated it will be clear that if the liability of the master is to be extended to injury from pure accidents, then the Act should alone be the law governing these questions, and that a workman should not be able to have other remedies. But it is certain, as we have said, that this Bill cannot yet become law, and it is to be hoped that before next year both employers and employed will give it careful consideration and enunciate their views upon it.

NOTES.

WE are very glad to see that there appears to be now some chance of the sculptured decoration of St. George's Hall, Liverpool, being completed. A complete scheme has been sketched out by Mr. Stirling

Lee, who executed the first panels some time since; it is estimated that it can be completed in ten years, at a cost of about £40,000, or £4,000 a year for the ten years, which does not seem an exorbitant sum for so wealthy a city as Liverpool to spare from its municipal revenues. There seems, however, to be rather a desire that some wealthy individuals should personally find the funds or a portion of them; and possibly it is to leave a margin for the wealthy individual that the first vote has been for 3,000*l.* only, not for four. Mr. Lee proposes bronze equestrian groups on the pedestals flanking the steps of the end portico; a series of panels on the east side of the portico representing "The Growth of Justice" and "National Prosperity," and over these panels statues (on the bases between the square columns) representing "Spirits of Light and Virtue" governing and inspiring Justice and Progress. In the pediment, "The Triumph of Commerce" (does this refer to the existing sculpture in the pediment?); on the panels round the concert-room, "The Nine Muses," flanked by "Music" and "Nature"; on the panels on the corners of the building, "The Scientific Discoveries of our Time"; on the pedestals between the columns on the west side, "The Attributes of Municipal Government"; while the four groups facing the four corners of the globe will represent "The Spread of Civilisation and Colonisation." This is a fine scheme, and we hope it will now be carried out without further delay or postponement. If it is at last accomplished, one cannot but feel that it will be mainly due to the perseverance and persistence of Mr. P. H. Rathbone in urging the matter on his townsmen, and his liberal example in providing funds for the execution of the first panels. We do not always agree with Mr. Rathbone's views on art, but he is at all events an enthusiast, and his enthusiasm has succeeded in surmounting a great deal of opposition, arising more, perhaps, from indifference to art than active hostility.

IT is satisfactory to find the Government giving a prominent place to such useful legislation as the Conciliation Bill. This measure passed the second reading on Monday, and will in due course be considered by the Standing Committee on Trade. The President of the Board of Trade, in explaining the objects of the Government, and dealing with the various objections made to their proposals, acknowledged that the measure is really only a tentative scheme; and it is certainly desirable that it should be left open to such modification as may be suggested by experience of its working. There is a danger attaching to such legislation as this, of adopting hard-and-fast rules which may repel disputants, a position which Mr. Bryce and others fully recognised. We cannot agree with the speaker who regarded the Conciliation Clause of the Railway and Canal Traffic Act as a failure, although, in some cases, no satisfactory settlement was arrived at. A sufficiently large number of successes have been scored by the Board of Trade in their mediatorial capacity to prove the value of this clause of the Act. It was argued on Monday that the Board already possess much of the power which this Bill confers upon them of bringing disputants together. But it is one thing to have power to act when it may appear desirable, with equal liberty to abstain, and quite another to be under an obligation to take certain steps at the outset of a dispute, without waiting for it to reach an acute stage. The existence of a recognized and properly-constituted means of mediation must necessarily facilitate the settlement of strikes and lock-outs. Several cases might be quoted to prove this, much being irrecoverably lost to both parties while casting about for a mediator or vainly waiting for a volunteer. Much remains to be discussed by the Committee, the debate on the second reading foreshadowing considerable difference of opinion on matters of detail, although there was a gratifying unanimity as to the principle of the measure.

THE new number of the "Antike Denkmäler," just issued (ii., 2, 1895), is an unusually rich one, and deserves the special attention of English archæologists owing to the number of plates devoted to the publication of monuments in the British Museum. Three are devoted to the frieze-reliefs of the Mausoleum. As long ago as 1877, Professor Michaelis, with the co-operation of Sir Charles Newton, had a complete set of drawings made by the artist of the Archæological Institute, Ernst Eichler, but owing to difficulties in the mechanical reproduction of the extremely delicate pen-and-ink work the publication of them was set aside for the time. Since then a good many portions of the frieze have been published in various books and monographs as Greek art, but the complete publication of all the fragments was never undertaken till now, when the drawings of Eichler at last see the light. In the text that accompanies the plates, Professor Michaelis gives briefly the bibliography of the subject, and discusses the technical peculiarities of each of the three friezes, the Amazonomachia, the Kentauromachia, and the Chariot Race; he also, in the text, gives drawings of the plinth on which the Amazon frieze rested, with accurate reproductions of the curiously-varying profile of the cymatium that runs beneath it. The drawings will form the basis of a full discussion of the whole of the Mausoleum, to appear shortly in the "Jahr-buch," from the pen of Dr. Franz Winter. Besides these plates devoted to the Mausoleum, Dr. Dümmler publishes, in exact coloured facsimile, some of the curious vase fragments brought to the British Museum from Defenneh, and Mr. Theodor Wiegand publishes a black-figured hydria, also in the British Museum, with an interesting representation of women drawing water at a fountain. In it he believes we find our best help to picturing in imagination the sort of structure that Peisistratos made for Athens when he turned the simple fountain Kallirrhoë into the complex Enneakrounos.

THE Bradfield College Greek Play, in the theatre on the Greek model formed in the college grounds, has been revived again this year, after an interval of three years; probably it was found impossible to keep it up annually without interfering too much with the ordinary school work. The play, on this occasion, given on Saturday and Tuesday, and announced for repetition on Thursday and Saturday in the present week, was the *Alcestis* of Euripides, which drew an unprecedented number of spectators, probably because the story is better known (partly through Browning's paraphrase) than that of any other ancient drama. As on the last occasion, when *Agamemnon* was performed, we gave a full description and a sketch of the theatre (see the *Builder* of July 2, 1892), it is unnecessary to return to that now. The performance was a very good one, and greatly to the credit of those who took part in it; Mr. B. Wood-Hill played the part of Alcestis with a great deal of feeling, and the representation by the head-master (Dr. Gray) of Admetus was a very highly-finished piece of acting. Nor must we omit the charming singing in the part of the child Eumelus (the son of Admetus) by one of the younger boys, L. E. Brakspear. Some additional interest was given to the performance by the treatment of the musical accompaniments under the direction of Mr. Abdy-Williams, now the instructor in music at the College, who has made ancient Greek music a special study. The instruments, *citharæ* and *auloi*, are copied from ancient representations, as far as design and make are concerned, and produce sounds which have a pleasantly old-world effect quite different from those of modern instruments. The *cithara* is a type of stringed instrument seen in many ancient representations, and what most people probably would denominate a "lyre"; the *aulos* is a pipe with a reed mouthpiece, giving a low mellow tone. The music, without professing to be on imagined Greek models (about which no certainty is possible), was sufficiently distinct from the manner of modern music to assist materially in the antique effect aimed at in the whole representation, and in this sense even its rather melancholy and monotonous character had a value. The practical use of an auditorium planned on the Greek model, with the seats returning past the semicircle in horse-shoe form, leads to the conviction that to many of the spectators of the ancient drama the singing and evolutions of the chorus were the chief attraction, and the interest in the actors on the scene a secondary matter, otherwise the auditorium would surely not have been planned so that the spectators towards the end of the curve could not have seen the stage at all. At Bradfield the Greek plan is adopted, but the spectators avoid the end seats, which are always left empty. Too much praise cannot be given to the admirable system on which everything was arranged for the convenience of visitors, and for getting them punctually into and out of the theatre, and conveying them to the station. Business-like management in such matters makes all the difference between comfort and discomfort. The weather was propitious at the Saturday and Tuesday performances, though on the latter day an overcast sky and an occasional blast of chill wind served to remind the company that open-air theatres are essentially an institution for a southern climate. We hope the Greek plays will be kept up at regular intervals; they are of the greatest interest in themselves, and an admirable source of education to the boys.

SOME pictures recently acquired for the National Gallery include the painting of old Covent Garden, purchased (for seventy guineas) at the sale, last month, of the late Lord Clifden's collection (see our "Note," p. 406, *ante*); and Hogarth's "Calais Gate." The latter is also known as "Oh! the Roast Beef of Old England," seemingly because a copy of the print was added to the title of a cantata so named. Hogarth crossed over to France soon after the signing of the peace of Aix-la-Chapelle. He was arrested at Calais as a spy whilst making his sketch of the old gate, and the treatment he received served but to intensify the narrow-minded prejudices he entertained, and often imprudently expressed, against everything he saw there. An engraving, by Hogarth and C. Mosley, after the picture was published on March 26, 1749. The gate, of stone, with a drawbridge, opening seawards, had been built by Cardinal Richelieu, who erected the citadel also, in 1635, and belonged to the fortifications, whereof the greater portion was removed for an extension of the town about twelve or thirteen years ago. The picture was sold for 2,450 guineas at Christie's in May, 1891, and is presented to the nation by the Duke of Westminster. The painting of Covent Garden is now stated to be by B. Nebot; in the catalogue of the sale it was attributed to Pugh.

MR. C. H. BELOE, M.Inst.C.E. (the engineer, we believe, to the International Sewage Purification Company), has recently drawn attention* to several improvements which have been effected in the mechanical part of the system, the chief of these being the "Candy" circular precipitating tank, with its highly ingenious and yet simple method of sludge removal. The one which we have seen in operation certainly works well, and as the sludge is extracted only a few inches below the level of the inflowing sewage, the expense of pumping the effluent will in many cases be avoided. The method of applying the same

* "Professional Papers of the Corps of Royal Engineers, 1895."—"Sewage Purification."

principle of sludge removal to existing rectilinear tanks is also clever and practicable. Mr. Beloe, however, makes one or two statements about the Scott-Moncrieff system of purification which need correction; the filter-bed required by Mr. Moncrieff for the sewage of 1,000 persons would not be 2,000 "feet square," but only 2,000 square feet (a vast difference), and it does not follow that because the filter-effluent from a household of 10 or 12 persons requires a nitrifying channel 80 ft. long, a "channel between 6,000 and 7,000 ft. in length would be necessary" for a population of 1,000 persons. As well say that if the sewage of ten persons requires a flow of five minutes from the time of dosing it with ferozone to its entrance into the precipitating tank, the sewage of 1,000 persons will require a flow of more than eight hours!

THE Sowerby Bridge School Board have issued instructions to architects for a competition for new schools for 600 children under the following generous conditions:—No premiums will be given, but the author of the selected plans will be appointed architect to carry out the work; he will be required to supply bills of quantities to the contractors *free of charge;* to dispense with a clerk of works, and take all the work of overseeing the construction; to measure up the work when completed; to hand over to the Board at the completion of the work the plans and specifications; and his remuneration for all this is to be 3½ per cent. on the total outlay. The Board will not adopt any of the designs if not of sufficient merit (of which they are to be the sole and final judges), and will reserve to themselves the right of making any alterations in any design that may be accepted. It is to be hoped that no architect of any standing or respectability will demean himself by sending in plans under such conditions.

MESSRS. BROADWOOD & SONS have had on view last week a grand pianoforte designed and very elaborately decorated in Louis Seize style, from sketches and details by Mr. C. C. Allom. Although this is not so original and striking a design as some decorative pianos which have been carried out by the same firm, it is a very satisfactory one in effect, as the style of design adopted lends itself very well to the constructive lines of a piano-case. The treatment adopted is in panels with delicate carved and inlaid borders, and a filling of marquetry, the majority of the surface being treated in a small diaper inlay in diamond-shaped partitions, each enclosing a delicate little floral design on a groundwork of harewood, bordered with kingwood and lines of ebony and holly. Some of the panels are distinguished by larger and more elaborate designs of inlaid floral work. The whole is further decorated with the delicately-proportioned "swags" characteristic of the Louis Seize style, which are gilded, a treatment which is no doubt in keeping with the style, though it seems almost a pity to take away the edge and *finesse* of delicate wood-carving by gilding it. In the side-view of the instrument the projection of the keyboard, with the double curve of the cover, is kept separate from the rest of the design, thus getting over what is always a difficulty in design, in the connexion of this projection with the side of the instrument. The legs, six in number, are arranged in pairs, braced together by cross-ties near the foot, each pair supporting a long bracket or lintel on which the body of the piano rests, thus giving a satisfactory constructive appearance. The treatment of the music-desk, with an elaborate floral design in inlay, seems a mistake, as the design must be hidden whenever the desk is put to its proper use, and when not wanted it is better folded down and out of the way. The mistake of decorating the keys, which we objected to in another artistic piano made some time ago by the same firm, has fortunately been avoided here. Whatever variety and elaboration may be allowed in the general decoration of a piano, the keys should always be left intact; they are essentially for use, not for show, and any disturbance of their simple black and white contrast is apt to trouble the player. Altogether this is a very satisfactory effort in pianoforte decoration, and deserves a record as such.

IT cannot be said that the summer exhibition of the Dudley Gallery Art Society is a very brilliant one; it contains a good deal of work that is of a very commonplace kind, and we fear that the large drawings by the President can hardly be removed from this category. Amongst the exceptions are the drawings exhibited by Miss Rose Barton, all of which are worth attention, though "Cromwell Road" (74) is rather too palpably a leaf out of the book of Mr. Herbert Marshall. Miss Margaret Bernard also shows in her broadly-treated and rather sketchy drawings the feeling and power of a true artist, and Miss Jex Blake's "The Ebb Tide" (199) is an admirable work, showing that the artist has a meaning in every touch of the brush. Mr. F. G. Coleridge's "The Thames at Mapledurham" (293) is an excellent bit of what may be called miniature landscape painting. Among the larger works which rise above the general level are Mr. Ash's "Evening" (1) and Mr. Boyd's "Kylemore, Lake Connemara" (247). M. Block's highly elaborated still-life subjects in the shape of drawings of collections of old books, &c. (97, 113), are better than ever, and in their own way are quite perfect. Miss Caroline Turle exhibits a very good drawing of the Temple of Niké Apteros (306), taken from an unusual standpoint, showing the flank of the Temple as seen by a spectator standing with his back to the Propylæa and looking outwards; the drawing is both broad in style as a watercolour and correct in architectural delineation. The same lady exhibits a good drawing of the "Temple of Segesta" (81). Other architectural subjects in the exhibition are much less satisfactory. In Mr. Williamson's "Old Square, Lincoln's Inn" (320), the buildings are all out of perspective; and Mr. Medlycott's drawings of "St. Ouen" and "Westminster" (56, 67) are absolutely discreditable in drawing, and would never have been hung by any committee who knew anything about architecture, and its representation in drawing. The cornice lines of the octagon lantern of St. Ouen are drawn as if it were a polygon or a circle; in "Westminster" the Victoria Tower is out of the perpendicular and the turret at one of the receding angles is actually shown higher than the one at the angle nearest the eye, a fault implying a want of the most elementary knowledge of perspective. That architectural subjects may be treated for the sake of general colour and effect, and not for the sake of showing architectural detail, we quite admit, but a necessary preliminary to this is to learn to give the main lines and character of the architecture correctly, and in true perspective, otherwise the result can only be a palpable bungle. Mr. Medlycott appears to have taken up architectural subjects without learning to draw architecture; he had better learn this before going further, or he will be likely to hear of it again.

DECORATIVE AND OTHER WORK AT THE ROYAL ACADEMY.

AMONG the decorative designs exhibited at the Royal Academy the first we come to is Professor Aitchison's geometrical section of a "New Picture Gallery at 2, Holland Park-road" (1,418). This is a section of a room with a small dome over the centre, the walls painted a rich but rather broken green, with no wall design; the columns which stand a little way from the angles are of a light-coloured veined marble, with antæ of black marble, which also forms the base of the columns and the walls. The Corinthian capitals of the columns are also of a dark colour, presumably bronze, but it is not very easy to gather this from the drawing. There is a frieze showing dolphins on a blue ground with a conventional wave pattern beneath them, and some ebony (?) chairs of rather Oriental outline and decorated with delicate inlay. The dome surface is left untouched with colour, probably for the sake of light. The effect of the whole is harmonious, and at the same time powerful and well marked in its contrasts of material.

Mr. Champneys' "New Reredos for Manchester Cathedral" (1,419) is not the style of work we sympathise with very much; there is a great deal of thin open-work, highly gilt, about it, producing an effect of glitter rather than richness. Mr. Wilson's "Design for Rood for All Hallows, Southwark" (1,420) is rather too sketchy in execution to make out precisely the treatment intended; there is a crucifix with a wide cross painted blue as a ground, and expanding into square compartments at the end of the three arms of the cross, which are occupied by kneeling angels, whether modelled or only painted, the drawing hardly makes evident. The lower part of the composition is occupied by a row of sainted women, some of them only sketched in, nor can it be determined whether these are painted on a ground, or are modelled figures standing free. The general effect of colour is very good; the heads of the saint figures are rather too small.

Mr. G. F. Bodley exhibits a rather hard pen drawing of the design for the "New Electric Organ for St. Paul's Church, Burton-on-Trent" (1,426). The design is also rather hard and straightlined; the principal decorative effect is obtained by pierced carving in woodwork in repeating patterns and diapers. The pipes are arranged in a semi-circular tower in the centre and smaller ones at the side. This central tower is a favourite treatment with architects, though, as we have before pointed out, it is not the true expression of the interior arrangement of the instrument, in which the larger pipes are at each end and not in the centre, and is moreover not so convenient for the builder. The brackets at the foot, which appear to support the case, are miserably poor and thin. Next to this is Sir Arthur Blomfield's organ-case for St. Saviour's, Southwark (1,429), of which we have given an illustration. Here the main towers are at the sides and the smaller one in the centre. The tops of the pipes in the towers are visible, and not hidden behind the canopies, which only form a heading over them. Either treatment may be defended: but there is more completeness about the design which covers the tops of the pipes, the necessarily unequal length of which is always a difficulty when they are left visible. Pipes of which the tops are left visible are often treated so as to be apparently of equal length on each side of the centre, but this is only a make-believe; in reality half the circumference of one pipe is cut away behind so as to reduce it to the real "speaking length" required by its note. No two pipes of the same stop can ever really be the same length, and it is better to admit this fact and conceal the inequalities of length behind a part of the ornamental casing, than to make believe that the pipes themselves are the same length by leaving a useless piece of metal in front. In other respects this is a fine and effective case; the decoration is rich, and the whole is confined within architectural lines without hardness or squareness; the cornice-like feature which runs across the centre serves to bind the whole together while at the same time it is broken and altered in its lines in going round the "towers" so as to avoid too harsh a straight line. The canopy of the smaller centre tower is treated lozenge-shaped on plan, so as to contrast with the circular plan of the end towers. The latter are supported on brackets of adequate proportions. Mr. Jackson's organ-case shown in his interior of Radley College Chapel (1,434) shows the now not very common feature of what the Germans call a "Positif," or choir organ treated visibly as a small organ in front of the large one, and forming a screen to the player. We hope that this is a real choir organ, and not, as is sometimes the case, a mere arrangement of sham pipes. The "Positif" has its own treatment in three small lozenge-shaped turrets of equal size, the spaces between them prettily filled in with smaller pipes and two angels surrounded by open perforated wood-work. The large organ is treated in three towers of which the centre (semi-circular) is the principal one. There is a good deal of open wood-work, of semi-rococo style, used to give outline and play to the top of the case. We do not quite like the detail of the large leaf-like forms cutting across the flat

ranges of pipes; they seem a little out of scale with the remainder of the design. Mr. Skipworth's organ-case design for Teddington Church (1,444), is the prettiest and most origiral in detail of all, though, perhaps, a little wanting in solidity of architectural character. A great deal of the filling in panels, in pierced work, in which the vine-leaf is largely used, is charming in treatment. The centre is here almost necessarily emphasised, on account of the high proportions of the arch, under which the case or screen is placed. The pipes have been treated with a little originality, the centre pipe in the small towers having a spiral worked up it, and being slightly gilt, while the centre pipe of the centre tower is also spiralised and elaborately decorated. Mr. Arthur E. Perkins's "design for an organ-case" (1,448) is a good and bold one, very freely treated, and with a good deal of flow of line about it, and shown in a freely-executed washed drawing. This, as well as Mr. Jackson's and Mr. Skipworth's designs, illustrates a common practice now of adding what may be called decorative wings to an organ-case; ornamental projections at each side, which serve to screen off any interval left between the main body of the case and the side of the arch in which it stands, or to break the vertical line of the side. We do not like it so much when an organ stands free on a screen; there seems no sufficient reason for the wing then, which becomes a kind of excrescence; its excuse is to more completely screen the interior of an organ standing under an arch or vault. In Mr. Perkins's design, too, the wings terminate in a feature which looks a little too much like a candlestick lignified (we say "lignified" as people say "petrified").

Keeping for the present to the ecclesiastical designs, we may notice Mr. Tapper's "Bishop's Throne, Colombo Cathedral" (1,451), as a good bit of rich modern Gothic church furniture, shown in a neatly-executed Indian-ink shaded drawing. Messrs. Shrigley & Hunt's "Decoration of Reredos for Newton-le-Willows Church" (1,492) is too high to be well seen, but appears to have a rich decorative effect in the painted figures on richly gilt and diapered grounds. Of Mr. Thomas Grew's "Decoration round Confessionals" (1,542) we may say also that it cannot be very well seen, but produces a pleasing effect by the employment of light-coloured figure subjects (one of them appropriately representing the First Sin) and ornament, on a light red ground; the colouring being altered to a light blue ground above the impost line.

Among the designs for stained glass the most important are the two exhibited by Mr. Holiday, that for the "Apse Windows of Grace Church, Utica" (1,456), of which we have published a monochrome reproduction, and that for the "East Window of the Church of St. Luke's Hospital, New York" (1,470). Both designs, so far as stained glass can be represented in water-colour, exhibit a colour scheme which is rich and effective without being too pronounced or strong in colour. The apse windows, which illustrate the "Benedicite," are treated in three stories of design, the centre one being a series of square panels illustrating such phrases of the hymn as "All ye winds, bless ye the Lord," &c., the elements of nature being represented by assemblies of figures treated in a purely decorative and conventional manner admirably suited to the conditions of stained glass. In this respect the whole treatment of this window might be studied with advantage by the authors of some other designs in the room, who introduce perspective and pictorial effects which are quite foreign to the proper requirements of stained glass. Mr. Holiday's other window represents the figure of Christ in the centre, backed by a semicircle of white glass, in which the leading figure forms an element in the effect, enclosing a surface of deep crimson. Figures representing the various ills of humanity, on either side, bend or look towards the central figure, and in the side lights are some small scenes illustrating acts of charity towards the sick, which are very suitably treated and grouped. Messrs. Percy Bacon Bros. exhibit the drawing of their "Izaak Walton Memorial Window" (1,501), which has been illustrated in our pages. Messrs. Percy Bacon have developed a style of quasi-architectural detail in nearly white glass, and partaking both of Classic and Gothic feeling, as a framework and canopy to the coloured figures in their windows, which is effective and suitable for stained glass; and in this window, where the figures are portraits merely, the whole design has a good and harmonious effect; but where, as in their other window, for Newcastle Cathedral (1,474), small subjects are introduced into this framework, treated in perspective and in a pictorial manner, the result is not to be regarded as satisfactory. Stained glass has nothing to do with pictorial treatment, and has no analogy with it; but there seem to be only two or three designers in this country who have fully realised this. One exhibitor shows us a treatment of (apparently) the miraculous draught of fishes, with a landscape and a lake and distant hills beyond it; a sort of subject which for stained glass is perfectly absurd. Mr. Stephen Adams's "Memorial Window" (1,481), with its conventionally-treated rococo architecture, would be suitable enough for a building in a certain phase of Renaissance style, if the architectural forms were properly conventionalised for the purpose; but the author has only gone half-way in his conventionalism, and shows the forms as if solid and with a shadowed side, which again is absurd in a window design; how can we possibly reconcile the idea of transmitted light with cast shadows? Mr. Grylls design for the east window of the Radley College Chapel (1,416) looks as if it were good, but is hung too high to be well seen.

We cannot help remarking that it is a most unfortunate thing that a national Academy of Arts can do nothing better for artists in stained glass (those few who merit the name) than give them space to hang a few small water-colour drawings which can really show nothing adequately except the form and arrangement of the design, the effect of colour being merely indicated in flat tints which can convey no idea whatever of the real effect of a stained-glass design. There ought to be a room arranged for the exhibition of stained glass with the light behind it; we could then realise the effect and the treatment, which it is impossible to do any justice to on paper. At the Academy everything is provided for the exhibition of pictures, but nothing for the arts of decorative design.

Of decorative work of a non-ecclesiastical class there is not very much exhibited in the way of original design, but what is exhibited is mostly of good quality. Mr. Formilli's "Design for Decoration of a Morning Room in Wood and Majolica" (1,423) is a perspective view of the upper angle of a wainscotted room with a coloured majolica frieze with enormous "swags"; the drawing is bold and powerful, the effect a little too much so. M. Boekbinder's "Bedroom Ceiling" (1,497) is a piece of work well carried out in its style, but considerably too heavy in effect for a bedroom. It is in the French taste for ceiling decoration, with a circle in the centre painted with a flying figure of Night amid clouds and stars, and the smaller panels are filled with naturalistic groups or bunches of flowers; the architectural details of cornice and panel mouldings are carefully carried out. Mr. R. Hallward exhibits a pretty and fanciful little design under the title "Vespers" (1,526), which looks as if it were intended for the back of a book or something of that kind; it shows two figures of angels put in with dotted lines of greyish tint, dancing on the silhouette of a cloud, with gold stars appearing between their wings. It is a slight little bit of work but it is really original and artistic in feeling. Mr. Hallward also exhibits some good designs for embroidery (1,594). A book-cover for an "édition de luxe" of "Masterpieces of Art, 1894," by Mr. Albert A. Tarbayne (1,539) is a good design in gold on white vellum, in which a conventional treatment of peacocks in front elevation, with their spread tails forming a series of decorative circles, is employed with good effect.

Drawings of old work are not as numerous as usual, but there are some important and valuable ones, the principal among which are Mr. H. C. Corlette's two large geometrical drawings of the colour decoration at St. Anastasia, Verona (1,503 and 1,522). Mr. Alfred H. Hart contributes an excellent and careful drawing of the marble screen and throne in S. Lorenzo, Rome (1,565), and Mr. Francis W. Bedford another of the coloured decoration in the Loggia of the Vatican (1,602). Among drawings of the picturesque class is a frame of admirable little pencil sketches by Mr. Arnold Mitchell, representing "A Week's Sketching in Normandy" (1,523), which were published in our New Year's number of this year; a water-colour drawing of "The Choir Screen, St. David's Cathedral" (1,486), by Mr. T. G. Jackson; an interior, by Mr. A. W. Prentice, of "Dutch Library in a House at Glasgow" (1,499), and a charming water-colour by Mr. Spiers of the "Wolfgang's Kirche, Rothenberg" (1,556), a model of architectural illustration in water-colour, combining effect with accurate representation of detail and texture.

EARLY CHURCH ARCHITECTURE.

AT a meeting of the Glasgow Architectural Association, held on Tuesday evening, June 4, Mr. A. N. Paterson, M.A., the President, in the chair, Mr. William J. Anderson, A.R.I.B.A., read the following paper on—

"THE EARLY DEVELOPMENT OF THE CHRISTIAN CHURCH."

The history of the early Church building is a subject which has a varied interest, and is of great importance in several aspects. To the Roman Catholic it is of moment, in so far as it records in stone the history and practice of an undivided Church, the Church of the early fathers—Catholic not only in name, but in substance. The Protestant is attracted to a subject which involves the study of the primitive and persecuted Christian assemblies. If the Protestant in his archæological study finds that early Church a simpler institution, with customs and ritual less complex than modern Catholicism, Catholics, on the other hand, might contend that the protest of the sixteenth century has been so complete as to give the Churches (Lutheran and Anglican excepted) a character which *may* be purer and more spiritual, but which, at least, is totally different to the churches of the early period so far as investigation may be carried. To the ecclesiologist it is, perhaps, of paramount importance as the study of the earliest forms in which the Church was worthily realised, and it is his peculiar function to reconstruct its doctrines from its stones. To the architect it is most interesting in its evolution, or gradual adaptation to its purpose, and as the chief link between Classic and Mediæval art, or more precisely, between Roman and that Romanesque which contained the germ of the Gothic principle. The ecclesiologist not only reads all manner of symbolism into its stones, which, in a subjective way, he is quite entitled to do, but often attempts to construct the edifice on a pre-supposed symbolic design, and, despising the aid of true archæology, derives it from purely spiritual ideas. The architect is much more cautious in what of this he accepts, and finds its prototype in the forms of surrounding buildings, the customs of the times, and the habits of the race, under the necessity for provision for the new wants of a new faith. The *reductio ad absurdum* of the ecclesiologist is the doctrine of numerical symbolism, by means of which two doors are made to signify the two-fold nature of Christ, and three to signify the Trinity; and confusion of thought is apparent when along with emblems such as the cross and dove, and accounted symbolic in the same sense, the stones joined in the wall of a church are said to symbolise unity. At the same time a certain degree of conscious symbolism must be acknowledged to the builders of comparatively early times; it must be absolutely and frankly admitted in reference to the decoration; and it is therefore the more likely that it ultimately entered into the structure; but we shall be at least on the safer ground if we reject symbolism in the plan and fabric of early buildings, and regard them purely as developments arising out of the practical necessities, under certain given circumstances.

There is no period in the history of architectural development where it can be said that a new building, or class of buildings, was not influenced in some degree by pre-existing structures. The power of originating a complex structure perfectly suited to a new purpose has never been vested in one man, and yet perhaps down to our own day there have been few cases where originality of design was more in demand than in the required adaptation of a building to the wants of the new religion, or the provision of temple form for a faith that had almost nothing in common with the old temple worship. The art of planning or disposing buildings for different purposes had at the time made great progress among the Romans, but, in complexity at least, was not so far advanced as among us to-day, and one building was the pattern of another to a greater extent than with moderns. Under any circumstances, it is natural to look for a model, or models, of the Church in the buildings which surrounded its inception.

In the first place, it will be desirable to have some idea of the relation of the Church to society and public life during the early periods of its existence. For the first three centuries, with but intervals of toleration, the Church was, to all intents, a secret society, persecuted fiercely on at least nine different occasions, and meeting wherever it could possibly escape the rigour of the law. Nothwithstanding, by the end of the second century, Christianity had been preached

with success in every department of the great Roman empire, and even beyond the Roman dominions. "An upper room" formed the first meeting place of Christians, and during the apostolic age, and for a long time thereafter, there can be no doubt that anything much better than this was out of the question in most districts. But there were wealthy Christians even in Paul's time, and we know that private meetings were held in their houses, which more or less would conform to the Roman pattern preserved for us in Pompeii. The peristyle of the house was not only the largest compartment, but it was also the most secluded, and although open to the sky in the central part, might even on occasion have been covered. If we can imagine a meeting to take place here, it would be natural for those officiating at communion to take up a position at the triclinium, or dining-saloon, which was sometimes raised, and the little congregation to stand under the roofed aisles of the peristyle. Curiously enough, this system of placing the faithful in the side aisles is the normal one in the early Church; it is also remarkable that at least two early Syrian churches—one of large and another of very small dimensions—have preserved a hypæthral arrangement similar to the Roman peristyle, or are open to the sky in the central part. In the Roman house (fig. 1) one can imagine that neophytes and persons uninitiated in the mysteries of religion might, in times of rest from persecution, occupy the tablinum and atrium—which at certain times of the day was almost public property—in accordance with Roman fashion. The picture drawn may be termed a fanciful one, in so far as the arrangement of the congregation is concerned. There is, however, nothing improbable in it, and, as will afterwards be shown, it agrees in a remarkable manner with the disposition of the various classes of hearers in the churches two or three centuries later.

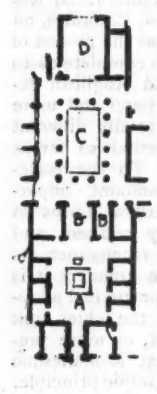


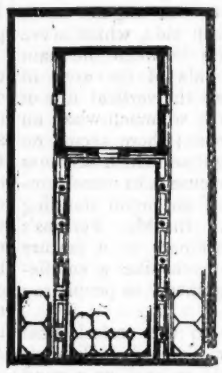
Fig. 1.

But at times the waste places and catacombs were perhaps the chief meeting-places of the sect everywhere spoken against. The catacombs at Rome were subterranean passages, out of which pozzolana, an ingredient in Roman cement, had been for many generations extracted. There the Christians had buried their dead, and, being in the habit of visiting their tombs, had recourse to these hiding-places for secret assembly and communion. At the intersections of the narrow passages chapels were rudely formed, and it may be in this way that the advantages of a transeptal form were made apparent. It was esteemed an honour to be buried in the vicinity of a saint, and probably these catacombs were held in veneration long after the necessity for having recourse to them had ended. Here is the history of the times most succinctly put in what are called the Homilies—"Unto the time of Constantine, by the space of above 300 years after our Saviour Christ, when Christian religion was most pure, and indeed golden, Christians had but low and poor conventicles, and simple oratories, yea caves under the ground, called cryptæ, where they for fear of persecution assembled secretly together. A figure whereof remaineth in the vaults, which yet are builded under great churches, to put us in remembrance of the old state of the Primitive Church before Constantine; whereas, in Constantine's time and after him were builded great and goodly temples for Christians, called basilicæ: either for that the Greeks used to call all great and goodly places basilicæ, or for that the high and everlasting King was served in them."

This brings us naturally to consider the other buildings, with whose form the early Christians must have been familiar, and especially the possible influence of the Roman basilica or law court, from which it has been generally supposed that the Christian basilica was derived. In the above quotation there is no reference made to the Roman basilica, but simply to the root meaning of the word, which was in the Greek a royal residence or king's palace. The Roman basilica most probably took its name from a hall forming part of the arrangements of the palace, where justice was administered. An example of such a private basilica may be traced at Domitian's palace, adjacent to the throne-room, and consisted of an apartment, nearly square, with side aisles, divided from the nave by columns, and terminated at one end by a semi-circular apse almost equalling the width of the nave. Domitian, however, belongs to the end of the first century A.D., while the first public basilica was erected 184 B.C., according to Livy, and long after the early kings were expelled. The private basilica of the Greek or Roman kings was doubtless the king's judgment-seat, and used for that end exclusively. But the great public basilica of the Romans appears to have served another purpose than that of justice, being used as the place of mercantile exchange. The tribune seems to have been an essential feature of the arrangements, though not invariably in the apsidal form, having in its centre and close to the wall the ivory curule chair of the prætor, flanked by the seats of the advocates; round the sides of the semi-circle were the subsellia, a raised platform with seats for the accommodation of privileged persons. In front of the chair, and under the arch of the tribune, was placed an altar, where daily libations seem to have been made to the gods, and where the oaths may have been administered. In other respects the forms of the ancient basilicæ vary materially from one another. Among them, the basilicas of Pompeii, Herculaneum, and Emilia and Julia at Rome, may be mentioned as existing in the apostolic age, while the vast Basilica Ulpia, the work of Apollodorus, belongs to the beginning of the second century. Constantine, the emperor who first recognised the Christian religion, completed the secular basilicæ of Treves and Maxentius (his predecessor) at Rome. Both of these show a considerable departure in plan and construction from the earlier structures of this class. In the basilica of Maxentius we make acquaintance with the new type, in which the ranges of columns are swept away and the wood roofs replaced by a gigantic cross vault. This type of fabric seems to have been developed in such buildings as the public baths; and the central hall of those of Caracalla, which date about 212 A.D., closely resembles the Maxentian basilica both in plan and construction. The Gothic principle lies latent in this system; but it was this which, carried to Byzantium with Constantine and affected by Eastern methods such as the pendentive dome, produced the style we know as Byzantine. The condition of things regarding these Pagan basilicæ then seems to be that a large number of the wooden-roofed kind were in use down to Constantine's time, and that the form of basilica then affected was such as is typified by this great work near the Coliseum. It is difficult to credit the theory that the law courts were ever used as churches; certainly, this could not have happened till the time of Constantine, under whose reign the Christians emerged from what has been happily called the "tunnel" period, into the warmth and light of imperial good-will. Even then, the law courts would still be required for business purposes, and the only buildings which became of no use were the temples of the gods.

In considering this subject, the great mistake has very often been made of assuming that there were no Christian churches before the time of Constantine. Many authorities might be quoted as holding that the plan of the law court instantly suggested itself as the most suitable type, and was at once adopted by the Roman Christians of the year 330 A.D., or thereabouts, when the religion became for the first time favoured. There were, however, frequent and long periods of toleration during the first three centuries, and there is every reason to believe that churches were built and other buildings employed and adapted previous to Constantine's time, even in Rome itself. In a paper read before the R.I.B.A. in 1853, Mr. R. Burges says that "the Christians did sometimes obtain by special favour the use of some building of no external appearance, but they were not permitted to extend the dimensions or to affect any imitation of the temples of the gods. Alexander Severus granted a sort of tavern "for the Christian superstition," the Taberna Meritoria in the Transtibertine district." Of course, all such inferior buildings have long since been swept away, and we are without materials to form any positive judgment on the architecture of this epoch. But it is believed that the Church of St. Maria in Trastevere stands on the site of this old tavern, and we know that St. Pudentiana occupies the site of an old Roman house, said to be that of Pudens, mentioned in the last verse of Paul's Epistle to Timothy from Rome. There is little reason to doubt the statement, and it is highly probable that the house had been employed for Christian assemblies even in Paul's time. On all grounds, I am inclined to believe that in such temporary abodes which the Church possessed, a long process of adaptation to the forms of service must have been going on, perhaps not so much in Rome as in the provinces, which ultimately took form in the huge basilican churches erected during Constantine's day, some of which have come down to us.

One might be inclined to doubt the existence of a desire on the part of the early Christians to imitate the temples of the gods, as inferred by the quotation just made, and would rather suppose that the temple architecture was as abhorrent to them as idolatry itself; and in the same way we might doubt how far they consciously imitated the form of a place where at times scant justice had been done to them, and which could best be described as a house of merchandise: I mean the basilica. At the same time, it is to be feared they gave little care to such matters. Many of the earliest of these plan forms are almost identical with the cella of Roman temples; sometimes, as if the classic structure had been stripped of its unnecessary encasing columns, or as if the whole edifice had been enclosed and roofed over so as to render it completely available for indoor or private assemblies. Some of the very early churches in North African colonies are exactly of the form which could be produced by one or other of these methods applied to ancient temples. Examples of these are the churches of Ibrim and Announa, in Nubia and Algeria, respectively, in relation to such a temple as Mars Ultor at Rome; or the still more ancient church at Djemla (fig. 2), Algeria, compared with the type of the temple of Antoninus and Faustina (fig. 3), near the Roman forum. The enclosed form of the sacrarium or chancel, however, is not without suggestion of the triclinum of the dwelling-house; and the classical mosaic with which the floor of the peristyle and aisles is laid heighten the resemblance, and give colour to the conjecture.



CHURCH AT DJEMLA
NORTH AFRICA

Fig. 2.

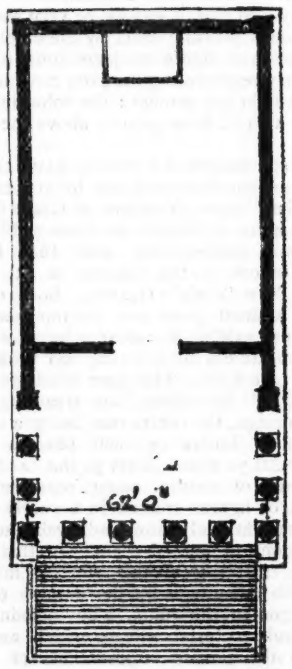


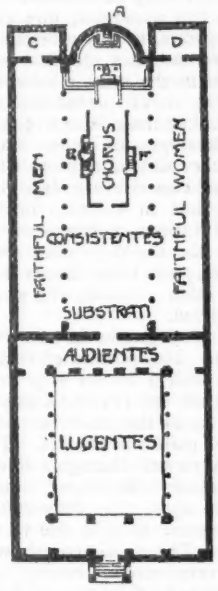
Fig. 3.

It seems as if the southern and eastern churches, while possibly more independent in government, had made a more distinct separation between clergy and laity than the early Roman churches, and had endeavoured at a very early period to invest the simple rites of church observance with great mystery and pomp. Hence the exclusiveness of such a sanctuary as that of Djemla and Pelopenesus, where it is cut off from the people by a solid screen wall and formed into a "holy of holies," the harmless survival of which we have in the altar rails and sanctuary of an Anglican church. The key to the diversified types of plan, and perhaps in some measure to the general problem, seems to be the persevering continuance

through everything of varying heathen superstitions and practices. Although the civilised world was one vast Roman empire, and the arts everywhere came under the influence of the capital, yet religion preserved its local colour and form. In the East, Christianity did not fail to partake of the sacrificial character of Semitic worship (the temple was attended by the Palestinian Christians till its destruction), while in the South the mystery and magnificence of Turanian religion characterised the ritual, which was withdrawn from the people. In Rome, however, the Church seems at first to have been truly democratic in accordance with its traditions; gradually, however, adopting the more exclusive tendency, just as at the same period it was gathering to itself the architectural styles of the whole world. You will remember that magnificent passage in Charles Reade's historical novel "The Cloister and the Hearth," where the Friar Colonna rounds on his brother friar Jerome, and tells him his frank opinion that all their Mediæval Christian festivals, institutions, and superstitions were purely pagan in their date and method and origin. That the feast of the Immaculate Conception of the Virgin was celebrated on the 2nd of February, the old Romans having been accustomed to hold the Miraculous Conception of Juno on that date; that Janus bore the keys of heaven before St. Peter; that Venus was to the ancient mariners, Stella Maris and Regina Cælorum, while Mary to the modern sailor is Queen of Heaven and Star of the Sea; that winking images and the hundred altars in one church are pagan; that infant baptism is Persian and incense Oriental. You remember how Jerome, white with indignation, said that if it was not for Colonna's illustrious family, he would have him burnt at the stake, and the cheerful reply—"And *that* is pagan. Burning of men's bodies for the opinion of their souls is a purely pagan custom." And when we know that the Mediæval church had made its own so great a mass of heathen tradition and corruption, which must have grown up within it, it is impossible to believe that the earlier church, surrounded by an atmosphere of pagan superstition, and what was worse, perhaps, favoured by a corrupt State, could have been quite unaffected and maintained the simplicity with which we often thoughtlessly credit it.

Properly to understand the arrangement of the plan of the early churches, it is necessary to have some idea of the customs of their services. One would not be far wrong in concluding that simplicity of worship characterised the church meetings during the first two centuries. These meeting places required at first no more than an elevated seat for the minister to read or preach from, a table for communion, and a basin of water for baptism, and it was not till far on in the second century that the table became the altar, and was enclosed and railed off, with the seats for the clergy, from the rest of the church. The most noteworthy testimony to the character of the worship of the time is given by Justin Martyr, who suffered in the cause *circ.* 148. He says:—"On Sunday a meeting is held of all who live in the cities and villages, and a section is read from the memoirs of the apostles and the writings of prophets, so long as the time permits. When the reader has finished, the president, in a discourse, gives the admonition and exhortation to imitate these holy things. After this, we all rise and offer prayer. Having ceased from prayers, we salute one another with a kiss; after which, to him who presides over the brethren, bread is brought, and a cup of wine mixed with water. He who presides offer prayers and thanks, and the congregation answer amen. Then they who are called among us deacons, give to each of those present a portion of the bread, and of the wine mixed with water, over which the thanksgiving has been made, and carry away a portion to those who are absent. The wealthy and willing then give contributions, according to their free will, and this collection is deposited with the president, who therewith supplies widows and orphans, poor and needy, prisoners and strangers, and takes care of all who are in want." In the latter part of the second century the Lord's Supper seems to have been separated from the ordinary Sunday service, and only the faithful allowed to remain. Discipline, on the whole, was firmly exercised in the early Church. There appear to have been four orders of catechumens or penitents besides those in full communion, in the post-Constantine Church:—(1) The penitents or mourners, who were only admitted to the atrium, and who stood there in part to beg the prayers of the others to the more sacred parts; (2) the *audientes* or hearers, who occupied the narthex, the part at the entrance screened off by a wall from the nave; (3) the order of *substrati*, who were admitted within the building, and were so called from the custom of prostrating themselves before the bishop or priest when the sermon was ended, to receive his benedictions and prayers specially offered for them, after which they were dismissed with the *audientes*, having no right to join the communion service. This custom, in some degree, survives in the ordinary forenoon service in most Congregational churches, and also in the "fencing of the tables" at the few-and-far-between Presbyterian communion services. (4) The fourth order were the *consistentes*, who remained to the whole service and joined in the prayers, but not in the sacrament itself. They also occupied, probably, the nave of the church, while the *fideles*, or faithful, occupied the side aisles (just as in the fancy picture I drew of the hearers in a Roman peristyle), the men generally in the south aisle and the women in the north.

A brief description of the normal form of basilica

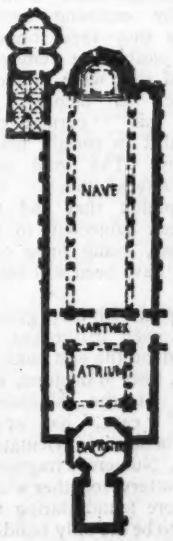


EARLY CHRISTIAN CHURCH.

Fig. 4.

church after Constantine (Fig. 4), so far as we can distinguish it, may be appropriately undertaken here. It is important for accuracy of description, although it may be confusing, to point out that the orientation of these edifices was exactly the opposite of what is the custom in England. That is to say, the sacrarium or bema was at the western end usually, although, perhaps, there was no fixed rule. Of fifty churches of early date, some forty have the sacrarium at the western end, while only seven are placed in an eastward position. Beginning, then, at the eastern end, the entrance is made usually through a projecting open porch to the atrium, a quadrangular court surrounded by a covered alley, a survival of which, down to the present period, is to be found in the cloisters of monastic establishments, which in appearance it resembled. This is a feature which does not exist in connexion with Roman basilicas, although it has been seriously suggested that in the forum we find its prototype. This, however, is, on the face of it, far-fetched, and only propounded to bolster up the basilica theory at one of its weak points. The atrium, at least, was almost certainly obtained from the dwelling-house, and like the dwelling-house the church seems to have had its public atrium from one side only, while the basilica entered from all available sides. On the west side of the atrium, on the side next the church, the cloister passage was often wider, and formed the narthex, the next division of the church. Before entering the narthex the worshippers were accustomed to wash their hands in a fountain which occupied the centre of the enclosure, and this is doubtless the simple origin of the holy water in the Mediæval churches, although the custom of sprinkling with water was one common to the pagans, and the *aspersorium* a feature of their temple furniture. Doorways give access from the narthex into the church proper, the central door being generally larger and more richly ornamented, and ultimately called the royal gate. The plan of the nave is a square or parallelogram, having either single or double aisles on each side. These aisles are wide, one story in height, and lighted by a row of small windows of marble panes high up in the walls. The columns dividing the aisles—generally abstracted from ancient temples and other buildings, with little regard to regularity—bear a continuous entablature or support arches, and the roofs appear to be of open timber-work of a rude character. Occupying the western part of the nave proper, and often extending halfway into the church, is the raised platform of the chorus or the choir, having a low wall around it, with a gate at the church and lateral entrances close to the bema. On this screen are placed the ambone, one for the reading of the Gospel and possibly for preaching, while another opposite is provided for the reading of the Epistles. The position of the choir is not a little remarkable, though natural on musical grounds. Although modified to Mediæval times, and departed from in modern days in the Anglican Church, no deviation, perhaps, is more to be regretted musically, and architecturally, at least in so far as it is the function of architecture to fit a building to its uses. The beauty of the arrangement is, however, better understood when it is remembered that the full members of the early Church occupied the aisles, and the back part of the nave was reserved for the *consistentes* and *substrati*. Within the arch which terminates the nave, a few steps lead up to the fourth division of the basilica, the bema or sacrarium, which to some extent corresponds with the Mediæval chancel, or perhaps more properly, to the "presbytery" part of it within the altar rails. Under the floor, and just within the arch, called by symbolists the arch of triumph, and supposed to represent "triumph over death and the grave," is frequently found the confessio, which contained the relics of a martyr or saint. Right over it was the communion table or altar, elevated and enclosed by a baldachino supported on columns, and hung between with curtains. For the most part, both in Anglican and Roman Catholic churches, this position has been long departed from, the table being placed so that the celebrant stands with his back to the people. But in the earlier and more beautiful arrangement the pastor's or bishop's seat was placed in the middle of the apsidal tribune (or *concha*, from a shell), from which he must have risen to administer the sacrament. On each side of him are ranged the seats of the deacons or presbyters. The bema is flanked on the right by a room or apartment called the *prothesis*, the place where the bread and wine were kept, and on the left by the *diaconicum*, the sacristy or robing-room of the deacons, and, perhaps, used for other purposes. These apartments in the Eastern church almost invariably formed the termination of the side aisles. In the sectional construction and external appearance, as well as the decoration, there is even less to connect the church and the civil basilica. The five-aisled basilica of Trajan had at least the semblance of a vault internally, and the external effect of its two-storied side aisles must have been very different indeed from the low side walls of the church. These doubled-storied aisles, with their internal galleries, give no suggestion of the deep decorative frieze over the arches or entablature, which forms one of the most striking and characteristic features of the church interior, decorated as it was, first with frescoes and at a later date by mosaic pictures of the truths of the Christian religion.

The paper was illustrated, and the views of the lecturer supported by reference to diagram plans of Roman houses and temples, and of churches in North Africa, Greece, and Syria. A large number of lantern-slides were then exhibited, including plans and sections of the Roman forum, with the two basilicæ of Julia and Maxentius, and a restoration of the former, the restored Pompeian house and its features, the interior of old St. Peter's, St. Clemente, St. Lorenzo, and St. Apollinare in Classe, near Ravenna, Torcello, Parenzo (fig. 5), and the early church of Canterbury. The exterior of Palladio's basilica, or town hall, at Vicenza, was shown as possibly the nearest thing existing to the civic basilica of the Romans, which he certainly intended it should resemble; than which nothing could well be more unlike the external effect of the early churches preserved to us. It was briefly described how the tomb of the Romans, and the circular chambers of the baths, became the baptistery and the circular or



CHURCH AT PARENZO IN ISTRIA (JACKSON)

Fig. 5.

octagon churches, a class by themselves. The chief difference between the church of St. Vitale at Ravenna, and the building generally known as the temple of Minerva Medica, is the same as exists between the church and Roman temple of the normal form—namely, the complete enclosure of the temple by an outer wall. In conclusion, Mr. Anderson said that he had attempted to prove that the civil basilica was not the model of the church building, which is to be sought in other directions. He did not insist that the Roman house afforded the only solution of the problem, but offered the suggestion that it may have had at least as much influence as any other building. It was an easy method to attribute any new development in architecture to one cause, but very many had to be taken into account in any really scientific solution, and perhaps the whole subject depended on investigations yet to be made in remote parts of the Roman Empire, where the church may have existed before the time of Constantine. A short criticism followed, opened by Mr. W. T. Connor, A.R.I.B.A., and in which Mr. A. McGibbon, A.R.I.B.A., and Professor Gourlay took part. The customary vote of thanks was awarded to Mr. Anderson by the chairman.

ROYAL SOCIETY CONVERSAZIONE.

THE second conversazione this year was held at the apartments of the Society, Burlington House, in the evening of Wednesday last, the 12th inst., and was, as usual, a brilliant success. Some of the exhibits had been held over from the first soirée, but there were many new ones of special interest to us, though the exhibition, as a whole, was not so good as it generally is.

Japanese art was well *en évidence;* Mr. W. Gowland, who has for many years resided in Japan, showed a number of large pictures illustrating the different schools of painting in that country, but the main object of the exhibit was to mark the effects of time on the pigments used by the old Japanese painters. Amongst the various subjects represented were a full-length portrait of Kwanyin, the Goddess of Mercy, by Jo Kisho and To Ryo, who lived in the earlier part of the fourteenth century; this was dated A.D. 1322, and was taken from the altar of a Buddhist temple. Another, of the fifteenth century, represented Li Tich Kwai a Chinese immortal, by Cho Densu; a third, a Buddhist saint; whilst others depicted birds, fish, and trees. The exhibitor laid special stress on the nature of the pigments used, illustrating his remarks by referring to the old painting of 1322. He showed that the permanent blue was *lapis lazuli*, which the Chinese painters ground into very fine powder, sorted by lævigation, and mixed with water and a small quantity of glue. The red was chiefly oxide of iron, but the vermilion was obtained from a mineral found in the country, sulphide of mercury. The greens were carbonates of copper (malachite), but time has made them nearly black—the change being effected possibly by the action of the glue mixed with the pigment. Black tints were obtained from soot prepared from the oil of *Sesamum indicum*. Permanent white was made in those olden times in Japan by exposing oyster-shells to the weather, so that their organic matter might as far as possible be removed, and when sufficiently rotted they were pounded up, lævigated, and mixed as before; we noted that nearly all this "permanent" white was now yellow, whilst in certain places it had gone quite brown. The gold used does not seem to have altered much. Mr. Gowland expressed the opinion that had the picture alluded to not been subjected to the deleterious fumes of incense, being hung over the altar, the colours would have been still better preserved.

A series of nine photographs, with map, ground plan, and section, of a Roman Mithræum, or Mithraic Temple, discovered on the east bank of the Medway, at Wouldham, near Maidstone, was exhibited by the curator of the Maidstone museum. This temple, or "cave," had apparently been built into a sandbank; it is orientated, and measures 40 ft. by 20 ft. Numerous fragments of tiles, Samian and other pottery, together with a coin of Constantinopolis, were found during the excavations. This is stated to be the only building of the kind hitherto found south of the Tyne. The Bute Docks Company had models illustrating Messrs. Lewis & Hunter's patent coal shipping system, as in use at Roath Dock, Cardiff, one of the advantages of which is, that the coal can be discharged into the hold of the vessel without being broken or much dust formed. The carrying boxes, slung by cranes, have a cone-valve or bottom, which is released to let the load out when it is lowered to within 18 in. of the flooring on which the coal is to be delivered.

As a matter of general interest, it may be noted that Professor Norman Lockyer exhibited photographs relating to his recent discoveries in spectrum analysis, which bid fair to revolutionise our knowledge concerning the constitution of certain stars. Although many of the lines shown in the spectra of these stars have been well understood for years, several others have hitherto proved enigmas, and it is to the elucidation of these latter that Mr. Lockyer has specially applied himself within the past few months—stimulated by the recent confirmation of his theoretical discovery of helium many syear ago in the spectrum of the sun. In his further researches he employs anapparatus for collecting the gases obtained from minerals by the distillation method, a photograph of which was exhibited. After treating a number (about thirty) of different and uncommon minerals in this apparatus, one at a time, and taking their spectra, it was ascertained that several of them gave out lines identical with the egnimatical elements in the stars alluded to, thus demonstrating that in all probability the minerals indicated exist in an incandescent condition in the heated envelopes of those stars. These important researches all tend to prove what is being made clearer and clearer every day, viz., that there is a great deal in common in the chemical constitution of various members of the Universe, though from the divers physical conditions of those members, some being hotter than others, and variable in other respects, the problem is considerably involved.

Dr. J. Joly exhibited photographs in what was termed natural colours. The process of taking and reproducing these differs in no way from ordinary photography upon the dry plate, except that the sensitive plate is in the camera exposed behind a screen lined in particular colours. The positive is subsequently viewed through a screen lined with three other colours—the three "fundamental colours" which upon the three-colour theory of vision are supposed to give rise to all our colour sensations. The specimens shown, first attempts, were very rough, having the appearance of being grained; this, the exhibitor explained, could be obviated by his using better appliances—it is a wonder he did not get these latter before showing the results to the Royal Society. It is also a matter for surprise that those who are making "colour photographs" will persist in explaining that they are "natural" colours; judging from this exhibit they are vulgar, florid, and very unnatural.

Electrical exhibits were far less numerous than usual and there were hardly any worthy of note. Sir David Salomons had a moderate-sized magnet, with a loop filament lamp placed between the poles, showing the action of a D'Arsonval galvanometer; whilst experiments were made to illustrate the rhythmic vibrations shown by the filament when traversed by an intermittent direct current when placed in the magnetic field. Lord Armstrong showed an apparatus demonstrating the effects of an outward positive and an inward negative current of electricity manifested by the travel of a cotton thread in the centre of a column of water flowing outwardly in the contrary direction; also photographs of electric discharge in air.

Mr. H. Thomson Lyon showed an instrument known as the parobolograph, for describing parabolas by means of a combined sliding and link motion; Sir David Salomons also had a model of a four-legged adjustable levelling-table, which, on having an object placed underneath one of the legs so that it stood unevenly, adjusted itself on pressure being exerted on the table-top. This was accomplished by two of the legs being drilled out so that false ones, which were compensatory in their effects, could slide up and down inside them, thus preserving stability. Bacteria from the Thames of various kinds, experiments in connexion with the transmission of infection by flies, silvered mirrors for reflecting telescopes and eolithic implements were amongst the numerous other things on view.

COMPETITIONS.

NEW SETTLEMENT BUILDINGS, UNIVERSITY HALL.—The competition designs for the new settlement buildings for University Hall, Gordon-square, W.C., will be on public view at Dr. William's Library, Gordon-square, on Tuesday, the 18th inst., from 10 a.m. to 1 p.m., on Wednesday from 10 a.m. to 10 p.m., and on Thursday from 8 p.m. to 10 p.m. The competing architects are:—Messrs. C. C. Brewer and A. Dunbar Smith, M. S. Hack, Gerald Horsley, A. H. Mackmurdo, E. W. Mountford, Ernest Newton, E. S. Prior, Halsey Ricardo, W. Stirling, F. W. Troup, F. Waller, and H. Wilson. The assessor (honorary) is Mr. R. Norman Shaw, R.A.

THE FOX ALMSHOUSES, NORTON, STOCKTON-ON-TEES.—Some fifty architects submitted competitive plans for these almshouses. The trustees have selected the design marked "Northton," by Messrs. Clark & Moscrop, architects, Darlington. Their scheme provides separate houses for twelve men, porter's lodge, common room, and clerk's offices. The grounds are laid out in old-fashioned formal style, with straight paths, bowling-green, sundial, &c. The elevation will be a group of gabled, half-timbered, and brick houses, covered with red tiles.

WINTER GARDENS NEW BALL-ROOM, BLACKPOOL.—On Monday the directors of the Blackpool Winter Gardens met to consider the five sets of plans sent in for the proposed new ball-room, and other additions. It was eventually decided to adopt the designs of Messrs. Mangnall & Littlewood, of Manchester. The cost of the extensions will be about 50,000*l.*

Illustrations.

"MONUMENT AUX MORTS": SCULPTURE.

WE are glad to be able to present our readers with an illustration of M. Bartholomé's fine and striking work in sculpture, exhibited this year at the Champ de Mars Salon, and which has commanded the admiration, we may say, of all who have seen it.

The whole work typifies Humanity progressing towards the House of Death—some of the figures with joy, some with resolution, some with terror and despair. It is a striking point that, of the two figures with their backs to the spectator, who are entering the tomb, the woman seems, as far as attitude and action can imply, to be encouraging and supporting the man. The groups on each side are not, as they have been absurdly misrepresented in the press, the mourning relatives of the two in the centre; they are other types of humanity on their way in turn to the dark entry.* Below are seen the forms of husband, wife, and infant lying in the tomb, the angel of Hope watching over them. On the background is inscribed in French the text—

"They that sat in darkness and the shadow of death, upon them hath the light shined."

The Municipal Council of Paris have commissioned the sculptor to carry out this impressive work in stone, in the cemetery of Père Lachaise. It is fortunate for M. Bartholomé that he is a Frenchman. Had an Englishman produced such a work, he might have waited long enough before either a State or a municipal authority would have troubled their heads about it.

NEW CHURCH, PETWORTH.

THE new Catholic church at Petworth, together with the priest's house in connexion, is now in course of erection. The materials used externally are local Sussex stone, with Bath stone for the windows and dressings, the roofs being covered with Westmoreland green slates. The internal masonry is in Beer stone throughout. The plan of the church is cruciform, with a total internal length of 101 ft., and a width of 39 ft., the transepts having a width of 60 ft. 6 in. The chancel is groined in stone, the rest of the roofs having panelled ceilings. Mr. Fredk. A. Walters is the architect, the contractors being Messrs. Goddard & Sons, of Farnham and Dorking. The total cost of the church and house will be about 9,500*l.*

STUDIO, CHÂTEAU DE BUILLON.

THIS is a studio for Mr. James Tissot, the well-known French painter, at his country estate near Besançon, in the south-east of France. It is partially an old building, said to have formed part of an ancient abbey. The lower portion of the walls and the tower are of the local stone of the estate, the upper story mainly of half timber-work and plaster, and the roof is covered with tiles. Inside, the studio or painting-room has an open timber-roof, with a gallery along one side and end. Opening from this room on one side is a salon, and on the other and one end are

* We have the sculptor's own authority for this explanation; which, in fact, ought to be quite obvious from the design itself.

conservatories, seen in the view as projecting over the arcade and the columns.

The studio forms part of extensive alterations and additions going on at the château from Mr. Brydon's design, with M. Vieille, of Besançon, as resident architect on the spot.

The drawing is exhibited at the Royal Academy.

HOME ARTS AND INDUSTRIES ASSOCIATION.

THE eleventh annual exhibition of the "Home Arts and Industries Association" is being held during this week at the Royal Albert Hall, and shows some very creditable work.

The objects of the Association, as some of our readers are aware, are to teach the working classes the minor arts, *i.e.*, woodcarving, inlaying, metal *repoussé*, basket-making, and leather work, by means of voluntary instruction given at the homes of the teachers, or in rooms provided for the purpose. Over 500 classes are at work in England, Ireland, Scotland, and Wales, and these are supplied with designs, models, and leaflets of elementary instruction.

Of the exhibits as a whole one cannot speak too warmly; they are, it is true, often the work of mere lads and girls, but they show strongly the interest which is taken in their execution, and do not possess the hard machine-like look which similar articles invariably bear when on view in any ordinary shop.

Of the work generally we can scarcely single out examples, but mention might be made of the medicine cupboard in walnut and inlayed with various coloured woods, by a member of the Pimlico School, and designed by the Hon. Mabel de Grey, and also the well-executed convertible hall settle and table from Clonkeen, Co. Limerick. The fisher-boys of Southwold show some excellent and useful articles in wood, executed in the winter evenings. In wood-carving the schools at Sandbach and Altrincham are foremost, but the work bears the impress of almost professional hands, and does not appeal to us so well as the simpler home-made articles. The Princess of Wales's Technical School at Sandringham shows some creditable work in wood-carving, and the needlework from the hand of Her Royal Highness shows her skill in this direction.

Throughout the exhibition some excellent examples are shown of beaten copper in such articles as candlesticks, trays, &c., recalling old work in their simplicity of treatment. Some of the best of these are from Mrs. Waterhouse's class at Tattenden Court. Stamped leather for book-covers and the like are sent from all parts, and show improvement in design on the ordinary trade articles. Other articles, such as hammered iron screens, pottery of various kinds, wooden water-jugs, &c., all executed with special fitness to their purpose, make up a very interesting exhibition, and are to be sold at prices comparing favourably with the ordinary stock articles.

Mr. G. F. Watts, R.A., has manifested much interest in the Association, and it is principally by his munificence that the endowment fund has been started.

As an attempt to revive the old handicrafts which once flourished in England, but which have now in many cases died out, and to encourage the labouring classes to take a pride in making their homes beautiful by their own work, the Association is pursuing a good and useful end.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE fifteenth general meeting (business) of the Session of this Institute was held on the 10th inst., at 9, Conduit-street, Regent-street, Mr. F. C. Penrose, F.R.S., President, in the chair.

The President referred to the British School of Archæology at Athens, and read the draft of a memorial proposed to be sent to Lord Rosebery, urging the claims of the school to an annual grant from the Government. Whereupon it was resolved "That the Council, on behalf of the Institute, do memorialise the Prime Minister in the terms of the paper read to the meeting."

The President read a letter from the Secretary of the Burlington Fine Arts Club containing an invitation to students to visit the Exhibition of the Art of Ancient Egypt now being held in the rooms of the Club.

A motion by Mr. Octavius Hansard, That it be a recommendation to the Council to publish the names of the seven proposers of any name or names added by Fellows and Associates to the nomination list issued by the Council, seconded by Mr. Gruning, was discussed and agreed to.

The President then read the report of the scrutineers appointed by the annual general meeting to conduct the election of the Council. The following were declared to be elected:—

President.—Francis Cranmer Penrose—unopposed.

Vice-Presidents (4).—Aston Webb, 461; James Brooks, 418; Ernest George, 408; Alex. Graham, 385.

Hon. Secretary.—William Emerson—unopposed.

Members of Council (18).—John McKean Brydon, 399; George Aitchison, 397; Richard Phené Spiers, 392; Edward William Mountford, 384; Arthur Cates, 376; John Alfred Gotch, 376; John Slater, 374; Thomas Blashill, 367; John Belcher, 366; Campbell Douglas, 364; Edwin Thomas Hall, 360; Thomas William Cutler, 350; Paul Waterhouse, 349; Arthur Edmund Street, 344; Benjamin Ingelow, 340; Edward Augustus Gruning, 334; Henry Louis Florence, 331; Charles Hadfield, 315.

Associate Members of Council (2).—Thomas Miller Rickman, 236; Beresford Pite, 216.

Representatives of Allied Societies (9).—Alfred Culshaw (Liverpool Architectural Society), Edward John Dodgshun (Leeds and Yorkshire Architectural Society), Thomas Drew (Royal Institute of the Architects of Ireland), John Goodacre (Leicester and Leicestershire Society of Architects), William Henman (Birmingham Architectural Association), John Holden (Manchester Society of Architects), James Jerman (Devon and Exeter Society), Joseph Oswald (Northern Architectural Association), Thomas Lennox Watson (Glasgow Institute of Architects) [unopposed].

Representative of the Architectural Association.—William Douglas Caröe—unopposed.

[The above members, who were declared to have been duly elected, compose the Council.]

Auditors.—Fellow, Frederick Todd; Associate, William Woodward—unopposed.

The President also read the report of the scrutineers appointed by the annual general meeting to conduct the election of the four Standing Committees.

A vote of thanks to the scrutineers was moved from the Chair, and carried by acclamation.

The following candidates for membership were then elected by show of hands:—

As Fellows—Charles Busteed Fowler (Cardiff), Francis Thomas Dollman [A.] As Associates—Herbert Phillips Fletcher, George Hubbard, John James Joass, Geoffrey Prater Armstrong, Walter Robert Jaggard. As Hon. Corr. Members—Alexander Wielemans (Vienna), Ferdinand Fellner (Vienna).

The meeting then terminated.

—Abridged from the *Journal* of the Institute.

ARCHITECTURAL SOCIETIES.

GLASGOW INSTITUTE OF ARCHITECTS.—A quarterly general meeting of this Institute was held on the 30th ult., in the chambers of Messrs. MacLean, Fyfe, & MacLean, 115, St. Vincent-street, the President, Mr. T. L. Watson, in the chair. After other business had been transacted, the following gentlemen, having been recommended by the Council and being approved of by the meeting, were duly elected members of the Institute, viz.:—Messrs. William H. Howie, Miles S. Gibson, Robert Miller, Andrew Balfour, Peter M'Gregor Chalmers, Alexander N. Paterson, Henry B. W. Steel, Alexander M'Gibbon. Messrs. W. F. Salmon and John James Burnet were re-elected Governors of the Glasgow School of Art for three years from August 1 next.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—The annual meeting of the Devon and Exeter Architectural Society was held at Exeter on the 6th inst. Mr. James Jerman presided. The President said the annual report did not record a long list of papers read or of visits to places of interest, as circumstances had diverted the attention of the Society in other directions. In the near future they hoped to return to these matters, and also to promote classes for systematic study for the benefit of the students. Their work for the past year had rather been one of development. A matter of importance was the establishment of a central place for the Society's work, for the reception of books and collections and for meetings. If only an ordinary amount of interest was shown, much might be done in this direction. It might be possible before long to appoint a representative committee for the whole district to confer as to the best methods for utilising the valuable educational advantages afforded in the technical colleges and classes which were already doing good work. The report having been adopted, Mr. Arnold Thorne was elected President for the ensuing year, and Mr. Crocker Vice-President, Messrs. Warren, Commin, and Cole were elected on the Council, and Mr. Tait was re-elected Hon. Treasurer. The resignation of Mr. Warren as Hon. Secretary was accepted with regret, and the selection of a successor was left to the Council. Mr. Ballan was re-appointed Assistant-Secretary and Librarian. The Chairman presented Mr. Hine with a photograph of the members in recognition of his services in connexion with the visit of the Society to Plymouth; and the proceedings closed with a vote of thanks to Mr. Jerman for presiding. The members took luncheon together at the New London Hotel, and afterwards inspected various places of architectural interest in the city.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The concluding meeting of the session of this Association was held on the 5th inst., Mr. C. H. Compton in the chair. Mr. W. de Gray Birch read a list of the places to be visited during the forthcoming Congress at Stoke-on-Trent in August. Mrs. Dent, of Sudeley Castle, sent for exhibition some further illustrations of tiles from Winchcombe Abbey, one of which bears the curious canting device of Tydeman de Winchcomb, Bishop of Worcester, 1395—1401, viz., a capstan or winch, and a large comb surmounted by a mitre and pastoral staff. A paper was read by Mr. Walter Money on Shirburn Castle, Berks., and some notes on four Northamptonshire churches of the Norman period, from the designs of a French architect, were contributed by Mr. J. T. Irvine. The churches are St. Peter's, Northampton, Castor, near Peterborough, Maxey, and Wakerley. Upon one of the capitals in Wakerley Church there is some curious carving illustrative of a knight on his way to the Holy Land, parting from his lady, who had accompanied him as far as the Hellespont; she is taking leave of him beneath the walls of the city of Constantinople, and in the background the carving indicates a very early representation of the church of St. Sophia, the dome and the openings for light being distinctly shown; the date is about 1120. Mr. R. B. Barrett then read a paper upon Caistor Castle and Sir John Fastolfe, which was illustrated by some pen and ink drawings. In this paper he pointed out the incorrect orientation given to the map in Mr. Dawson Turner's book upon Caistor published in 1842. In this map, or plan, the author placed the chapel of the castle, a free chapel dedicated to St. Margaret, and chapel of the adjacent college, at a point adjoining the Great Tower, and the compass-points would appear to have been made to agree with that position, but Mr. Barrett showed from observations of the shadows cast at noon one day in May, 1893, and from reference to the Cambridge orientation chart, and the Ordnance maps, that the orientation of Mr. Turner's map could not be accepted as correct.

Correspondence.

To the Editor of THE BUILDER.

THE HYGIENIC EXHIBITION AT PARIS.

SIR,—With reference to your paragraph in "Notes," on page 429 of this week's *Builder* about the coming Sanitary Exhibition of Paris (under the patronage of the Municipality of that city), you are probably not aware of the fact that, although English firms are asked to exhibit, they are entirely excluded from supplying their goods to the Municipality.

Our own experience of the treatment shown to foreigners by the City of Paris is not very favourable.

Some ten years ago we established works in Paris for the manufacture of our various sanitary appliances. On our applying for permission to tender for the supply of our goods to the Municipality, we were informed that we must give proof that all our staff was French, and that all the material employed in our manufactures was of French origin. This we did to the entire satisfaction of an "expert" appointed by the "Conseil Municipal," and who examined our books, vouchers, &c. In spite of this gentleman's report, and even against the request of M. Bechman, Chief Engineer of the "Ponts et Chaussées," to use our goods, the "Conseil Municipal" decided that our manufactures should be excluded from any works connected with them.

Such treatment is, we think, quite sufficient to explain the absence of English exhibitors from the exhibition in question. DOULTON & Co.

ATTENDANCE AT ROYAL INSTITUTE OF BRITISH ARCHITECTS PAPERS.

SIR,—As one of the younger Associates standing under your rebuke for non-attendance at Professor Brown's paper on Anglo-Saxon, may I be allowed a word in reply.

I imagine that the Professor is too well acquainted with the ways of students to have expected a larger attendance on their part for a paper which is pre-eminently one to be read.

Why should they have attended at all, seeing that illustrations were not to be expected, and that they would not venture to take part in the discussion, since only experts are very properly expected to speak at the R.I.B.A., although, as you have often complained, the older men do not, at times, keep to the rule. Personally, I had noticed with pleasure that the Professor was giving a paper, because I had studied with great interest his former effort, a brilliant rehandling of such a well-treated subject as Vitruvius.

I hardly expected, however, to derive much benefit from an hour's listening to a learned enquiry into Anglo-Saxon remains; a paper to be read with some care and thought. Non-attendance does not lessen the value of the paper.

The whole question of these papers requires reconsideration. The recent notice inviting MSS. was d'stinctly amusing. One may wonder when the Royal Institute of British Architects will do as the Engineers, and give prizes for such work; when it would be worth while to prepare such papers.

Students have enough artistic voluntary study to go through without adding the preparation of papers to the burden. A paper worth attention involves not only some originality and much study, but also days ot actual writing, and is then regarded very often as a mere piece of advertisement.

If the preparation of papers is of any value in architecture, as the late G. E. Street thought it was, the whole subject requires to be raised to a different level. ASSOCIATE.

*** In our opinion there is almost always something to be got from personal attendance at a paper and discussion, which escapes in the reading of it without attending. And as long as the reading of papers is an accepted means of bringing ideas before the profession (" or art ") to which a man belongs, it is a kind of duty to encourage the reader by personal attendance. Nothing is duller and more disheartening than reading a paper, perhaps the result of much thought, to empty benches.—ED.

The Student's Column.

BRICKS AND TERRA-COTTA.—XXIV.

LOCAL DEVELOPMENT OF BRICK-EARTHS.

London District.

IT is not necessary for us to go much into detail concerning the development of earths suitable for brickmaking in the London district, but it may be noted that the various loams in the river valleys and the London Clay are the sources chiefly drawn upon. The drift deposits vary in composition from sandy clay to clay very poor in arenaceous matter. They require to be mixed with chalk before being suitable for the purpose, especially in the neighbourhood of Ilford, Erith, and Crayford. The sections also are variable in thickness. Many of the older brickyards near Ilford are closed, but it is yet a brickmaking centre. The stratification of the clays there is generally regular and horizontal, though the layers frequently thin out, or expand, as the case may be, when traced very far. The beds of sand are irregular and undulating, whilst in some places the sands and clays pass into each other. "Race," or nodules of carbonate of lime, are common in the brick-earth. Mr. Whitaker gives the following section of the beds in the brickyard at Ilford, north of the railway:—

Ilford Brick-earth.

1. Brown clay and brown loam, together 8 ft., with "race" and a few pieces of flint.

2. Brown bedded loam of a lighter colour, more sandy and with thin partings of sand, as much as 9 ft. in places. Close by, this is half made up of layers of sand, some false bedded.

3. Light-coloured sand below.

So active is brickmaking in the vicinity of Erith and Crayford that it is barely possible to recognise surface features after the lapse of six or seven years, the whole of the superficial drift to the extent of many feet having been removed from the face of the country. Within the past year or so enormous sections, quite 30 ft. to 40 ft. in depth, have been cut out. The character of the earth does not differ essentially from that at Ilford. An examination of a dozen samples collected in various spots shows considerable variation in regard to the relative amount of clay and sand, and grains of glauconite are more frequently met with than at Ilford. Apart from the general excellence of the earth between Erith and Dartford, the proximity of chalk affords great facilities to the manufacture.

At Grays, in Essex, enormous excavations, both in the chalk (for lime) and brick-earth, may be seen. The latter is burnt in open kilns when derived from the drift; but great care is exercised in the manufacture of bricks from the argillaceous Thanet Sand, above the chalk, in the higher parts of the section. The earth is carefully prepared, moulded by machinery, and burnt in well-built closed kilns. The brick produced is superior to many made in the London area, being hard and sound. A microscopical examination of several varieties of this Thanet Sand, showed that (ignoring the drift above) the material became more and more argillaceous from the surface down to its junction with the chalk, at which point it is an almost pure clay with the mineral allophane well developed. The hard grains constituting the sandy portion were for the most part quartz, but a number of flint specks were also seen, especially in the sand of the lower part of the section. Glauconite and zircon were rare as compared with other sands examined. There can be but very little doubt that elements are present in the lower Tertiary beds of this area for enabling a much better brick than has hitherto been made to be produced, although, as before remarked, the brick now turned out is far above the average.

In the neighbourhood of Acton large quantities of bricks have been manufactured from a drift deposit resembling the London clay, and also from the latter formation itself. The brick-earth has also been worked at Ealing Common, and many other places.

Until within the past few years the London Clay, the loam beneath it, and the Thanet Sand were worked for bricks, &c., at Loam Pit Hill, Lewisham, and judging from the size of the excavations, the industry must have been a large one. The loam is composed of thin partings of clay and sand alternating with each other. A similar deposit has been drawn upon for many years at Bromley.

The mottled plastic clay of the Reading series is of great value in the outlying parts of our district, especially near Ewell and Epsom. This is worked for the manufacture of fire-bricks, tiles, drain-pipes, and coarse pottery. Mr. H. H. French, who has made detailed investigations as to the strata near those places, has published the following particulars.* At Nonesuch Kiln, one of the most important yards near London, the following section was measured:—

Brickyard Section at Ewell.

	ft.	in.
Clayey soil, with flints	4	0
Fine white loamy sand	5	0
Red clay, with grey mottling, false bedded, getting lighter in colour as it rises, top part more sandy	8	0
Green, red, and purple clay, with pockets of red and white sand, and a few pebbles, passing down into sand	5	0
Layer of pebbles	0	2
Coarse, bright green, glauconitic sand, with more or less horizontal tubular borings, filled with very fine white sand, capped with red clay	0	6
Coarse glauconitic ferruginous sand, with a tendency to false bedding	0	6
Laminated clay, mottled greenish and reddish, with glauconite sandy partings	0	9
Highly ferruginous streaky sand	0	4
Highly glauconitic sand, with partings of fine drab in the uppermost 9 in., and of red clay below	1	3
Layer of black pebbles.		
Greyish, strongly glauconitic sand, with scattered flint pebbles, and pebbles of drab clay, some "race"	1	7
Finely laminated brownish loamy clay	2	0
Tough blue clay, passing into bed below	5	0
Sand	6	0

We give the above section in detail as illustrating the wide variation in character of the deposits in one brickyard; similar beds occur at many places in the Reading series from Croydon to Reading, and also along the outcrop of that series in the northern and western portions of the London basin. It would be impossible to enumerate the different yards situated in that outcrop, but we may select a few for description in the Reading area presently. What we desire to call special attention to is that, given such a great choice of materials as is found at Ewell, it is possible for the intelligent manufacturer to make almost any of the different clay-goods not demanding absolutely pure clay. Dug at proper seasons of the year, nearly all the important beds can be kept separate from each other, and then mixed in such proportions as the particular class of goods in hand requires. With such a material as the Reading "mottled clay" a great deal of slipping takes place in wet weather, the beds being thus commingled, when they do admirably, after treatment, for brickmaking.

A sample of such mottled clay from Park Hill, Croydon, yielded the following chemical analysis to Dr. Hodgkinson*:—

Silica	47·70
Oxide of iron	15·76
Oxide of manganese	·12
Alumina, in the form of aluminic silicate	23·36
	86·94
Moisture, lost on drying at 100° C.	6·36
Water of hydration	7·39
	100·69

Reading District.

The neighbourhood of Reading has long been noted for the manufacture of bricks. The earth of which they are made is derived from the basement bed of the London Clay as well as the Reading series. One of the best-known pits, which may serve as a type of the others, is the Katesgrove Kiln, opened more than 100 years since. The section continually changes as the material is worked into, like that in the adjoining Waterloo pit. The following particulars are abridged from an account by Mr. Whitaker, of the Geological Survey:—

Brickyard Section—Reading.

	Feet.
Clay, sand, and gravel.	
Soft loam, lower part ironshot, and sometimes with ochreous concretions, &c. (used for soft bricks)	11
Dark red clay, partly mottled	4
Light ash-coloured clay with fine sand (used for bricks)	7
Fine sand, laminated and partly mixed with clay (used for tiles)	4
"White vein," fine ash-coloured sand, with a little clay (used for bricks)	5
Dark red clay, mottled with blue (used for tiles)	6
Lowest brick-clay, light grey, with fine sand	5
White sand (used for bricks)	4
Fullers' earth	3
Yellowish quartzose sand	5
Brown clay and sand	4
Chalk.	

The above section was made many years ago, and it may be that the uses to which some of the beds are put are slightly modified owing to changes in lithological character with the progress of the working. It is merely quoted, as before mentioned, to give some idea of the nature of the earths used in the locality, and the manner in which they occur. Other well-known Reading brickyards are Mock Beggars', at Earley, where the basement-bed of the London Clay rests on the mottled crimson and grey plastic clays of the Reading series; Norcot kiln, where pebble gravel overlies the lower part of the London Clay, consisting of brown loamy sand, containing thin layers of grey clay, reposing on plastic clays, underlaid by well-stratified and false-bedded buff and whitish sands of the Reading series; and Grovelands, where is a fine section of the same beds, but with whitish sands of considerable thickness.

Neglecting the brick-earths near Hungerford, let us pass by the numerous exposures along the north-western outcrop of the Lower Tertiary beds of the London basin, in the vicinity of Watford, Hatfield, &c., into the country around Ipswich, Hadleigh, and Felixstow.

Ipswich District.

The clays of the Reading series and the London Clay are worked for tiles and draining-pipes, and the latter formation forms a good brick-earth in its more sandy state, as near Hadleigh and at Ipswich, where the lower beds are worked.† The drift brick-earths, as a rule, are of little importance; but they are worked at and near Boxford, to the east of Ipswich, and at Trimley. Boulder clay is used for brickmaking after removing the stones by washing the material.

Colchester District.

The London Clay in this area has been dug for the manufacture of bricks at Seven Stars Green, near Fordham, and is used in combination with loam from the drift. In a brickyard to the north-east of Colchester it is bedded, and has calcareous bands. Pits are also situated at East Donyland, Brightlingsea, Alresford, and St. Osyth. The

* W. Whitaker. "The Geology of London." Vol. I. (1889), p. 128.

* "Proc. Geol. Assoc.," Vol. viii. (1883), p. 230.

† "Mem. Geol. Surv.," relating to the area, 1885, p. 101.

superficial deposits are gravel, sand, loam, and clay of the glacial series, which yield good material for brickmaking here and there; but the principal earths used are of more recent origin, as at near Marks Tey, where there is a thick bed of laminated brick-earth, the lower part of which (18 ft.) is dark blue, whilst the upper part (10 ft.) is brown. This deposit, however, like many others of Pleistocene age throughout the country, appears to be very variable in regard to its mode of occurrence, and details cannot be relied upon for many yards on its being worked into. At Copford, and other places near, enormous quantities of earth have been utilised; and, altogether, the industry is a large one in and around Colchester.

Stowmarket District.

Here, too, the loam, or brick-earth that occurs in places in the glacial drift is of economic importance. The neighbourhood of Woolpit has been famed for its white bricks since the time of Queen Elizabeth; and good red bricks are manufactured there also. The officers of the Geological Survey note that at about half a mile east of the village church there is a large brick-yard, where some of the best brick-earth for making white bricks is obtained. Boulder clay is shown above the brick-earth in the sections in this and the other yards in the vicinity. The greatest thickness of brick-earth is about 30 ft., the upper 15 ft. consisting of laminated light-brown loam with thin bands of grey clay, and the lower 15 ft., or so, consisting of dark bluish-grey plastic clay, from which the best white bricks are made. Occasional thin ferruginous bands, about one-sixteenth in. thick, occur interbedded with the laminated light-brown loam, pieces of which can be easily detected in every brick that contains them, and which are apt to lower the quality of the bricks by producing unsightly rusty stains down the face of a wall built with them. As a general rule, however, the bricks are excellent, and free from discolouring matter. It is a significant fact that such thin ferruginous bands should thus be able to affect the quality of the material, and points to the necessity for a detailed knowledge of the strata in brickyards. We have observed that the proprietors of many yards recognise the bright yellow or orange-coloured earths as containing a large proportion of iron; these are easily picked out by anyone possessing even a superficial acquaintance with the subject. Very few, however, would suspect that bands of black, green, and the like, are also often highly ferruginous and must be dealt with accordingly.

At Cranmore Bridge there is another immense brickyard showing 5 ft. of Boulder clay of a light marly character, containing many chalk stones, resting upon 4 ft. of dark bluish clay overlying 10 ft. of laminated buff-coloured brick-earth, from which excellent white and red bricks are made.

In the vicinity of Stowmarket itself the brick-earth is about 35 ft. in thickness, of a buff colour, laminated and much contorted. Not far off, near Abbot's Hall, is a large brickyard, which, accordingly to Mr. J. H. Blake, gave the following section:—

	Feet.
Gravel	9
Brick-earth, with some interbedded sandy laminated bed	5
Brown, false-bedded sand	15

The thickness of the brick-earth in this pit being only 5 ft., whereas from 200 to 300 yards further north it is 35 ft., tends to show the local and irregular nature of this deposit.

Norwich District.

The formation known as the Contorted Drift is worked for brick-making in the vicinity of Norwich. This deposit consists generally of brown stony loam, containing a few flints, and, rarely, large boulders of greenstone, &c. Its thickness is from 1 ft. to 35 ft. Pellets of chalk and patches of very chalky clay appear in it in many places, and in his memoir on this district, Mr. Horace B. Woodward remarks that towards Cromer, and further west, near Weybourn, these marly beds are worked for lime. The loam has "nests" of sand in it. Only the strong clays are worked for brickmaking. Perhaps the most noteworthy horizon, however, is that called the Laminated Brick-earth, which rests upon the pebbly gravels and laminated clays of the Crag in the parishes of Rockland and Surlingham. This formation is exploited for the manufacture of the celebrated Rockland bricks, and consists of bluish clay and yellowish-grey laminated brick-earth. One of the sections of Rockland is described as exhibiting a basin of blue clay, capped by traces of chalky Boulder Clay, and underlaid by grey and buff laminated clay containing hard marly beds. This blue clay, when burnt, forms white bricks, and the brown clay red bricks. Both contain small concretions of carbonate of lime.

A brickyard at Hedenham gave:—

Laminated brick-earth	10 ft. to 11 ft.
"Pan"	5 in. to 6 in.
Chalk gravel	3 ft., or more.

The brick-earth mentioned in the above section is used for white bricks and drain-pipes, red and white tiles, vases and other ware. It seems to have been worked as long ago as Roman times. At any rate, not many years ago, a Roman kiln was found at Hedenham, which was described by the Rev. S. W. King,* who observed that the interior, from top to bottom, showed the action of intense firing on the native clay out of which the kiln was scooped, and which formed its sides. What seemed at first sight to be rude courses of brick were only the varying beds of stratified brick-earth which had, in burning, taken different shades of colour, red or white, as the thin beds were more or less sandy or clayey.

Beds of glacial origin yield a good brick-earth, which has been most extensively worked on the southern borders of Mousehold Heath, and indeed all along the south-eastern part of the parish of Sprowston. This is known as the "Norwich brick-earth" and the bricks as "Mussel" bricks.

From the foregoing observations it will be gathered that the argillaceous deposits of the Eastern Counties are largely drawn upon for brick manufacture. Some of them are unsuitable in consequence of containing so much carbonate of lime, and we have seen that in certain localities that carbonate so predominates as to lead to the earth being used for the manufacture of lime. Occasionally the Boulder clay contains a large proportion of chalk pebbles: these have to be removed when too numerous, or ground up with the brick-earth when only few in number. The stronger clays, when not too much impregnated with lime, thus passing into rich marl, have proved serviceable raw materials, and when found contiguous to laminated sandy deposits, may be regarded as of especial value. The series known as the "Laminated Brick-earth" is, in certain localities, one of the best earths for making ordinary bricks that exists in the country.

OBITUARY.

MR. HEBER RIMMER.—We much regret to have to record the death of this promising young architect, who, in 1890, gained the Silver Medal of the Institute of Architects, and in 1891 the Soane Medallion. Mr. Rimmer, whose father, Mr. Alfred Rimmer, was known as the author of various illustrative works on picturesque architecture, was a pupil of Messrs. Douglas & Fordham, of Chester. He had been obliged to winter on the Mediterranean on account of his health, and died near Gibraltar on Whit Sunday.

GENERAL BUILDING NEWS.

RICHMOND TECHNICAL SCHOOLS. — These schools, which will be built for the Surrey County Council, from the designs of Messrs. Fryer & Bath, Westminster and Richmond, will occupy a prominent site on the corner of Kew-road and Selwyn's-avenue. The plans were selected in public competition, submitted under motto "Labor et Spes," and were adopted by the Richmond Technical Instruction Committee and the Surrey County Council. The plans provide for a large hall at the corner of Selwyn-avenue capable of accommodating 300 persons, behind which will be a class-room for dress-cutting, and provision for cookery classes, with separate entrances to these departments. A large corridor will separate the main building from the hall, so as to prevent any annoyance or disturbance of the classes. The opposite wing will contain a class-room 60 ft. by 25 ft., and is divisible into three smaller rooms by means of movable partitions. In the main building, on the ground-floor, there will be two large class-rooms, several smaller rooms, and accommodation for the head-master. Behind the large class-room will be a well-equipped chemical laboratory and balance-room. On the first-floor is the art school, 40 ft. by 25 ft., with an art class-room adjoining, and an art master's room attached. On the same floor are other class-rooms and caretaker's apartments. In the basement will be rooms for engine and boilers, coals, stores, lavatories, &c. The building will be heated by hot-water radiators, and the ventilation will be specially provided for. One of the features in the plan is the arrangement for lighting, especially in the art rooms, where there are both windows and skylights. The front elevation will be built in brick with stone dressings. The original estimate for the building was about 5,500*l*., but various modifications have been made in the plans, including mosaic pavements to the corridors, &c., which will bring the cost of the building to about 7,000*l*.

HOTEL, LYNMOUTH, NORTH DEVON.—A new hotel, the Lyn Valley Private Hotel and Boarding Establishment, has just been opened at Lynmouth. It is situated at the side of the West Lyn, and immediately fronting the East Lyn. The hotel was designed by Mr. Smith Richards, architect, of Barnstaple, and Mr. William Bevan, the proprietor. The rooms, of which there are seventy, are fitted with the electric light. The coffee-room, which is reached from the main hall, is 46 ft. by 21 ft., and the drawing-room is above. There are also sitting-rooms, and a billiard-room will shortly be completed. The bedroom accommodation is extensive. The reading-room, baths, kitchen offices, &c., are fitted with the necessary accessories.

VILLAGE HALL, OVERBURY, WORCESTERSHIRE.—A village hall is being built at Overbury, the work being carried out by a staff of about thirty local men, with Mr. Norman Shaw as architect. There will be four rooms, the public room being very much larger than the others, heated by hot water apparatus. The work has been in progress about two months, the builders being under the supervision of Messrs. A. Ancill and G. Stanley, while Mr. Baylis superintends the carpenters' and wood work.

MASONIC HALL, POLMONT, STIRLING.—On the 8th inst. the foundation-stone of the new Masonic Hall, which is being erected at Polmont, was laid. The hall is two stories in height, having on the ground floor two dwelling-houses, and on the upper floor the hall proper, with two retiring-rooms and lavatory. Access to the hall is gained by a stone stair, the entrance door being at the southernmost end of the building, and surmounted by the Masonic emblems of square and compass. The architects are Messrs. A. & W. Black, Falkirk.

CHURCH SCHOOLS, PARK, SHEFFIELD.—The schools attached to St. John's Church, Park, have just been reopened, after alterations which have cost 2,000*l*. The schools will accommodate 300 girls and 300 boys. The girls are to be on the lower floor and the boys on the top floor, and for each department there is a schoolroom and four class-rooms, with cloak-rooms, and teachers' room. The rooms are 14 ft. high, and are heated with slow-combustion open fire-grates. The class-rooms are divided from the schoolrooms by glazed pitch-pine partitions. Mr. Joseph Norton was the architect, and the work was carried out by Mr. George Webster.

SCHOOLS, BARNSLEY, YORKSHIRE.—The new schools at Keir-street, built by the Barnsley School Board, were opened on the 10th inst. A site was first obtained at Old Town, opposite the present infants' school there, but while the building was being erected the site began to sink and the walls to crack, so that it became necessary to remove the building to another place, and the present site was then obtained. The schools are from designs of Mr. C. Robinson, architect, and are intended to accommodate about 300 children, with provision of cloak-rooms, playground, &c.

BOARD SCHOOL, CHESTERFIELD, DERBYSHIRE.—On the 10th inst. a new Board school was opened at Chesterfield. Provision is made in the new building for 280 children, at a cost of about 3,910*l*. Messrs. C. Rollinson & Sons were the architects, and Mr. W. Forrest, Chesterfield, the builder. There are separate playgrounds for the boys and girls, and also separate entrances and exits.

LADY CHAPEL, CATHOLIC CHURCH, ILFRACOMBE.—The new Lady Chapel, built out from the north side of Ilfracombe Catholic Church, was recently opened. The chapel, erected by Messrs. T. Upton & J. P. Huxtable, Ilfracombe, is connected with the nave by a carved arch in Beerstone, supported by pillars of red Devon marble. The ceiling is arched, and the floor tiled, each step being faced with black marble. The lighting of the chapel is provided for by two stained-glass windows by Messrs. Lavers & Westlake, London, representing "The Annunciation" and "The Visitation." The altar and reredos are the work of Mr. A. B. Wall, of Cheltenham. The base of the altar is of Californian marble. Variegated marble pillars, with carved capitals, rising from this support a solid piece of white marble forming the altar table proper. The frontal is of onyx, with a white alabaster cross. The reredos itself is of white Beerstone, terminating in carved finials. In the centre is a statue of the Virgin, in white alabaster, resting on a rich diapered pedestal, with canopy and spire above. On the right and left are smaller statues of St. Ann, St. George of England, and other saints. The chapel and altar have been built from plans supplied by the Rev. Canon Icobs, of Yeovil.

TOWER, ST. MARY MAGDALEN, HARLOW, ESSEX.—The third and final instalment in the building of the Church of St. Mary Magdalen, Potter-street, Harlow, in the form of a tower, was dedicated recently. The church occupies the site of a chapel-of-ease put up about 1833. The new church has a nave 54 ft. by 24 ft. and a chancel 22 ft. by 18 ft., with vestry and organ-chamber on the north side, and low tower and spire at the south-west corner, the ground floor stage forming the porch. The church is in the Perpendicular of the fifteenth century style. The walls are of flint with Bath stone

* "Norfolk and Norwich Arch. Trans.," vol. vi, p. 149.

dressings, and there are open timber roofs covered with slate. The inside fittings are of pitch-pine, and the passages are paved with tiles. The tower is of low proportions, with parapets, and there is a square timber spire covered with oak shingles. The church accommodates 174 adults. The work has been done in sections, as the funds were raised. 1st, the chancel and vestry were erected in 1888, and opened to the old nave; 2ndly, the old nave was demolished and the new one erected in 1893-4; and 3rdly, the tower and spire were built in 1894-5. The stone font was the gift of Miss Arkwright. The architects were Messrs. Christian & Purday, of London, and the builder was Mr. Wm. Wade, of St. Neots. The bell-loft in the tower is capable of accommodating a peal of six or eight bells. A turret-stair leads to the belfry. The castellated parapet is ornamented. At the four corners there are figures emblematical of the four evangelists, Matthew, Mark, Luke, and John, and between them appear representations of the heads of the Right Hon. William Ewart Gladstone, the Rev. Henry Elwell, and a parishioner. There is also a relief of the head of Mary Magdalen, and others of a nondescript nature.

CONSTITUTIONAL CLUB BUILDINGS, PONTYPOOL.—On the 6th inst., a new Constitutional Club was opened at Pontypool. The building has been completed at a cost of nearly 2,000*l.*, from the designs of Mr. D. J. Lougher, architect, Pontypool, by Messrs. Monks & Co., contractors, of Newport. The walling in the front elevation is of native blue stone, with buff brick and Bath stone dressings. The other walls are constructed of native sandstone, and relieved with red brick quoins, reveals, jambs, and arches. The internal accommodation comprises:—On the first floor, reading-room, with committee-room behind, smoking-room, and lift-room, with lavatory accommodation. On the ground or street floor, billiard-room, bar, hall and staircase, vestibule, and lavatory accommodation. Owing to the peculiar nature of the site, the caretaker's department is provided under the street floor. The reading-room is arranged to accommodate from 120 to 130 people. It is divided off from the committee-room behind by means of large folding doors, which, when further accommodation is required, can be thrown open, converting both into one large room. A balcony is provided outside the reading-room, to which access is obtained from the latter by French casements. It is constructed with slate floor, ornamental iron railing around, and supported by iron brackets.

WESLEYAN CHAPEL, BOLTBY, YORKSHIRE.—A new Wesleyan chapel will shortly be erected in Boltby. The new building will be of stone from the local quarries, and the style will be Gothic. The interior of the building, including the class-room, which will form a transept when required, will seat 159 worshippers, and the whole will be heated with hot air, the apparatus to be supplied by the Sheffield Heating Company, Sheffield. Mr. T. Stokes, of Thirsk, is the architect.

WESLEYAN CHAPEL, GARTON, YORKSHIRE.—At Garton, near Driffield, a new Wesleyan chapel has just been opened. The building is from plans by Mr. Jos. Shepherdson, architect, Driffield, and will accommodate from 200 to 300 people. The approximate cost will be about 800*l.*

SANITARY AND ENGINEERING NEWS.

NEW LIGHTHOUSE ON THE ADMIRALTY PIER, DOVER.—On the 8th inst. Mr. Layton Lowndes, as Deputy-Chairman of the Dover Harbour Board, laid the first stone of the new lighthouse which is being erected on the east side of the Admiralty Pier, the object of the new building being to obtain an improved light and higher level than at present. Mr. A. T. Walmisley is the engineer.

SEA WALL, PENZANCE.—On the 1st inst. Major-General H. D. Crozier, R.E., Local Government Board Inspector, held an inquiry at Penzance as to the application of the Corporation to borrow 10,830*l.* for the building of a new sea wall on the western side of the Promenade, to replace the wall washed down during the gales of last winter. Mr. G. H. Small, Borough Surveyor, said the proposed new wall would be 737 ft. long, and would provide for a level walk 8 ft. below the surface of the Promenade. This walk would be approached by steps from each end, and a double flight of steps in the centre of the length of the wall. The total height from the foundation to the level of the promenade varied somewhat, but at the eastern end it was 29 ft., in the centre 27 ft., and at the western end 23 ft. They proposed to place the foundation 4 ft. in the clay. A slipway would be constructed at the western end 8 ft. wide. The face of the wall would be of granite ashlar, the bed set in Portland cement mortar, and the joints pointed and grouted. The backing would be of Portland cement concrete in the proportion of six to one—4 of granite macadam, 2 of sand, and 1 of cement. The top portion of the face of the wall would be a straight batter, the coping stones of granite, toothed into the course below at intervals of 14 ft.

SOUTHALL-NORWOOD DRAINAGE.—The District Council of Southall-Norwood applied some time ago to the Local Government Board for sanction of a loan, amounting to 4,976*l.*, to carry out works of sewerage and sewage disposal, surface-water drainage, and street improvements, but the Central Board has refused to sanction any further scheme of sewage disposal which does not, at the same time, provide land for the filtration of the whole of the effluent before it passes into the river Brent. The Local Government Board point out that, under the present arrangement, the sewage from the London County Asylum at Hanwell, which is in the Norwood parish, is not to be passed through land after being chemically treated at the outfall works; and that, in failing to do so, the District Council had not conformed to the conditions on which a previous loan was granted. Very large margarine works have recently been erected at Southall, and the District Council took the opinion of an expert as to whether the sewage and refuse liquid from these works, if passed into the sewer, would interfere with the work of chemical clarification at the outfall works. The opinion was that the sewage might be allowed to pass into the sewer without harmful results. But the Local Government Board has made to the Local Council a firm declaration to the contrary, and so matters are at rest for the present. Recently, a large area of building was transferred from Weston to Norwood, and is now, it is stated, waiting development; but will not be touched until the drainage extensions are carried out.

MUNICIPAL HYDRAULIC WORKS, GLASGOW.—The works which have been constructed by the Corporation of Glasgow to supply hydraulic power throughout the city were inaugurated on the 30th ult. The work was begun two years ago, and it has now been completed at a total cost of about £60,000. Situated on rising ground at the junction of High-street and Rottenrow, on the former site of some of the worst hovels in the city, the works consist of a series of castellated red-stone buildings. In anticipation of a great development in the use of hydraulic power, the works have been made to accommodate twice the amount of plant at present necessary. Any street or any part of the circuit can be easily cut off from the main system should accident or other causes render such a step necessary. The plant at the pumping station includes a tank made of specially tested cast-iron, three-quarters of an inch thick, which is capable of storing 200,000 gallons of water. The station was designed by Messrs. Ellington & Woodall, London.

FOREIGN AND COLONIAL.

FRANCE.—Four statues in stone, symbolising the "Four Seasons," have been placed in the "Cour d'Honneur" of the "Hôtel des Archives Nationales" in Paris.——The monument to Boussingault, the eminent chemist, is just being terminated at the Conservatoire des Arts et Métiers. M. Dalou has modelled the bust, which will be cast in bronze and placed on a red marble column on the top of a flight of steps.——At the Ecole des Beaux-Arts M. Baudot and M. Perret have obtained First Medals in the architectural competition for first-year men.——A bronze bust of Viollet-le-Duc, by Hiolle, has been presented to the Trocadéro Museum.——The great works commenced some time ago for the carriage of the Paris sewage to Achères are now nearly completed, and will be formally inaugurated by the municipal authorities at the end of this month. The complete carrying out of the scheme for the sanitation of Paris will include other works extending as far as Herblay, with a pumping station at Méry-sur-Oise. For the eastern and south-eastern portions of Paris a system of land distribution is to be employed at Maisons-Alfort and Choisy-le-Roi.——There is talk of transporting to the Louvre a very fine marble equestrian statue of Henri IV., by Jacquet, now at Fontainebleau, and which formerly decorated the room called the "Salle de la Belle Cheminée." The inhabitants of Fontainebleau complain very much of this continual robbing of the Château of its best ornaments.——M. Valleton, architect to the Department of the Gironde, has been made a Chevalier of the Legion of Honour.——The monument to President Carnot, at Nice, will be inaugurated on either the 24th or 29th of the present month. The monument will stand in the Place Cassini, and consist of a bronze bust on a stone pedestal, and surrounded by a decorative grille.——It is proposed to build a cathedral at Oran (Algeria), on the Place de l'Évêché.——The Chamber of Deputies has under consideration a Bill for authorising the scheme for bringing additional water to Paris from the valleys of the Loing and the Lunain.——The Minister of Public Instruction has appointed a special committee to consider the reconstruction of the theatre of Orange, which is to become a kind of French Bayreuth for the annual representation of classic drama.——The death is announced, at the age of forty-eight, of M. Louis Charles Fauconnier, former pupil in the Paccard-André atelier, and author of the monument at St. Germain in commemoration of the war of 1870. M. Fauconnier was a member of the Société Centrale des Architectes.

MISCELLANEOUS.

NEW CITY STREET.—Upon the application of Mr. Delissa Joseph, F.R.I.B.A., the London County Council have given their consent to the formation of a new thoroughfare leading out of Crutched Friars to be called Rangoon-street. The street, which is the first street sanctioned in the City of London by the London County Council under the new London Building Act of 1894, cuts through the half-acre of land, formerly occupied by the East and West India Dock Company's warehouses, and recently sold by them.

THE CITY COMMISSION OF SEWERS.—Several hours were spent in a discussion of the policy of carrying out street improvements and repairs in crowded parts of the City of London continuously by night as well as by day, at the meeting of the Commission of Sewers, held at the Guildhall on Tuesday last. The discussion arose out of a report from the Streets Committee recommending the repaving with asphalte, by the French Asphalte Company, of Fenchurch-street and Liverpool-street, and, by the Val de Travers Company, of Mansion House-street and the Poultry, the same principle being again discussed in a subsequent paragraph of the report, recommending that the carriage-way of Upper Thames-street be relaid with Australian hardwood by the Improved Wood Pavement Company. The various proposals having been discussed seriatim, four separate divisions were taken, the result in each case being the defeat of the advocates of continuous working; but these advocates, unwilling to accept the decision as final, gave notice, after several of the divisions, that they would move to rescind the resolutions at the next meeting. Another paragraph of the same report led to a lively discussion. This related to the lighting by electricity of the minor streets of the city, the report recommending that experiments should be made with three different systems of electric lighting, the City of London Electric Lighting Company carrying out the work at cost price, estimated at about 386*l.* An amendment by Mr. Wallace was accepted proposing that an experiment in incandescent gas-lighting should be carried out simultaneously, and that the debate be adjourned in order to give the members an opportunity of studying the bearings of the matter, which he regarded as of the highest importance from several points of view. It was decided to print and circulate, in the meantime, a special report on the subject, made by the Electrical Engineer of the General Post Office, Mr. Preece.

PROPOSED REFUSE DESTRUCTOR FOR TORQUAY.—Colonel C. H. Luard, R.E., has just held an inquiry at Torquay concerning the application of the Corporation to borrow 3,800*l.* for the purchase of land for pleasure-grounds, street improvements, and a site for a refuse destructor, to be erected on land abutting on Upton-lane and Parkfield-road. The Town Clerk said that for many years the town's refuse had been deposited on Windmill Hill, St. Marychurch, but now that site was required for other purposes, and St. Marychurch District Council had required the Town Council to cease placing its refuse there as early as possible. Complaints had been made as to the nuisance arising, especially as there was a large accumulation. There was some opposition by residents in the neighbourhood, but he did not think they understood that a refuse destructor, properly worked, caused no nuisance. It was one of the things a health resort like Torquay should have. Mr. H. A. Garrett, Borough Surveyor, produced the plans of the grounds. The site proposed for the destructor was removed from thickly-populated districts, but was centrally situated, and was the most suitable, because it would save a considerable amount in cartage. He did not think any property in the neighbourhood would be injured by a destructor. Most of the destructors he had visited were near houses, and at Bournemouth houses had been built close up to the destructor.—Alderman Harrison said the smoke emitted by the Bath destructor was a mere nothing. It was no nuisance to anyone living within 20 yards.—Rev. G. H. Statham, representing the Schools Union, said a new school was to be erected near the site of the proposed destructor, and he asked the Council to give careful consideration to that fact. Mr. Butland said the new school would be much nearer a slaughter-house than the destructor. Mr. Statham: No. The inspector, at the close of the inquiry, visited the proposed site.

THE PROPOSED REBUILDING OF NORTH BRIDGE-STREET, EDINBURGH.—In accordance with a remit of the Lord Provost's Committee of Edinburgh Town Council, the City Superintendent of Works has, says the *Scotsman*, prepared ground plans (1) showing an arrangement with a view to the entire reconstruction of the buildings on both sides of North Bridge-street from the south end of the new bridge up to High-street, with a frontage near the upper end of Cockburn-street, where partly unbuilt; and (2) showing only the two northmost tenements rebuilt and the rest of the street southwards left as at present. In the former of the plans the increase of the width of the street to 75 ft., uniform with that of the new North Bridge—according to the accompanying report of Mr. Morham—renders it necessary to acquire the property on each side nearly to the full extent, within the limits of deviation provided in the Parliamentary plan, from Fleshmarket Close on the west to Carrubber's Close on the east, including the Bridgeside Works building in Jeffrey-street. Milne-square, near the south end, on the west side of the street, is at present 32 ft. wide, and if this width be retained, there would only be 14 ft. left for the depth of the new buildings at this part. This,

Mr. Morham says, is obviously inadequate, but if the width of the open court be reduced by 10 ft., there would then be 24 ft. for the depth of the new buildings, which, though small, is more than some of the buildings at present on the opposite side. At the north end of the street the floor level of the new shops would be upwards of 50 ft. above the level of Market-street, and this height could be utilised either for two lofty stories of 25 to 30 ft. each, or for three, or even four, of less height, with premises extending under the new buildings and back saloons of the North Bridge. With the alternative plan, retaining all the buildings as at present, except the two northmost, it would still be necessary on the east side to arrange with the proprietor of Bridgeside Works. On the other side, a tenement of like frontage with back saloon would break in on the area of the Lower Fleshmarket; but as the greater part of this portion of the market premises is disused, the proposal, Mr. Morham reports, could be carried out with little difficulty.

SOCIETY OF ENGINEERS.—On Wednesday this Society paid a visit to the Waterloo and City Railway works. By this new electric line passengers will be able to get from Waterloo to a point near the Mansion House, without stoppages, in about four minutes, at an average speed of about 22 miles an hour. The departure platform at Waterloo will be about 36 ft. below the South-Western platforms, while in the City the depth below the surface will be 65 ft. At the latter place lifts will be required, but at Waterloo it is proposed to have easy inclines, with a few stairs at intervals. The line commences at Waterloo at right-angles to the existing lines on the southern side of James-street, in the parish of St. Mary, Lambeth, abutting on the Lower Marsh, and, passing under Waterloo Station, curves round to the right, under Cross-street and the S.E.R. Viaduct, when it enters the York-road, and still curving to the right, passes under Stamford-street, until Hatfield-street is reached. Here it bends to the left on a five-chain curve, and passing under some property at a depth of 56 ft., reaches the Surrey side of the River at a point some 500 ft. on the up-stream side of Blackfriars Bridge. The River is crossed obliquely, the centre line on the Middlesex side being about 120 ft. on the up-stream side of Blackfriars Bridge. From this point the railway bends on a nine-chain curve to the right, and then passes along the centre of Queen Victoria-street to its terminus in the City—opposite the civic residence of the Lord Mayor. The total length of the line will be 1 m. 4 f. 6·8 chains, or in round figures, 1½ miles. From near Hatfield-street to the City both the tunnels will be in the London clay, but from that point towards Waterloo ballast will be encountered. This latter portion of the line will be constructed under compressed air, as large volumes of water will be met with in the ballast. The contract for the construction of the line from Cross-street to the City Terminus was let to Messrs. Mowlem & Co., early in June, 1894, and they began operations by constructing the stage in the River, near Blackfriars Bridge. Here two cast-iron cylindrical shafts were sunk to a point 40 ft. below T.H.W.M., one above each of the tunnels, and below this the shafts were continued by underpinning in brickwork. The shields were then lowered in pieces, put together, and driven forward. Already 1,600 ft. of the up, or westernmost tunnel, and 1,400 ft. of the down, or easternmost tunnel, have been completed. Both tunnels are now under the Victoria Embankment, and are approaching the Metropolitan District Railway, under which there is a considerable depth of ballast, and a small cover of clay over the new tunnels. The Metropolitan District Railway Company required this company to drive the tunnels when passing under, and within thirty yards of their railway, under compressed air, and this is now in progress. The down tunnel towards Waterloo is approaching water-bearing strata, and here also the work is being carried on under compressed air. The haulage of materials to and from the shafts is done by electric locomotives (one in each tunnel), designed and constructed by Messrs. Siemens & Co. The engines and dynamos for the electric lighting of the tunnels have been designed and constructed by Messrs. Patterson & Cooper, of Westminster. The engineers for the railway are Messrs. W. R, Galbraith and J. H. Greathead; and their resident engineer is Mr. Harley H. Dalrymple Hay.

CHANCEL-SCREEN, ST. JAMES'S, EXETER.—This church has just received the addition of a wrought-iron chancel-screen. The work consists of a central arch, having figures of angels on the columns, and supported by side bays with pierced and gilt inscriptions in the upper portions. The expense was defrayed by the subscriptions of the parishioners, and the execution of the work was entrusted to the firm of Messrs. Hardman, Powell, & Co., of Birmingham.

CAPITAL AND LABOUR.

SETTLEMENT OF THE LEICESTER BUILDING STRIKE.—The joint conference, under the presidency of Sir William Markby, the mediator appointed by the Board of Trade, settled, on the 6th inst., the dispute in the Leicester building trade which has lasted ten weeks. The discussion occupied six hours. The result is that the employers have eliminated their claim to employ non-unionists and piecework from the working rules on the unionists undertaking to allow both for six months. Future disputes are to be settled by a joint board, with a mediator, the old operatives are to be reinstated at an advance of ½d. an hour before any new hands are engaged, and the employers obtain an additional concession as regards apprentices. The men returned to work on Monday. The plumbers' strike still continues, but it is hoped that the negotiations in progress will bring about a settlement, there being no substantial point of disagreement left.

MEETINGS.

FRIDAY, JUNE 14.

Architectural Association.—Annual Dinner, Holborn Restaurant. 7 p.m.

SATURDAY, JUNE 15.

Architectural Association.—First Summer Visit to Bickley Park, Kent, to several works by Mr. Ernest Newton. 2.15 train from Holborn Viaduct Station.

Northern Architectural Association.—Visit to Tennis Court, &c., Jesmond Dene House.

Association of Municipal and County Engineers.—Lancashire and Cheshire and Northern Districts Meeting at Thirlmere, &c.

WEDNESDAY, JUNE 19.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

THURSDAY, JUNE 20.

Society of Antiquaries.—8.30 p.m.

Northern Architectural Association.—Annual excursion, The Chesters.

FRIDAY, JUNE 21.

Liverpool Engineering Society.—Excursion to the main sewerage works, pumping-station, and refuse-destructor of the Borough of Cambridge.

Glasgow Architectural Association.—Visit to Dalziel House, &c., Motherwell.

SATURDAY, JUNE 22.

Institution of Junior Engineers.—Visit to Mr. Hiram S. Maxim's workshops at Baldwyn's Park, Bexley. Train from Cannon-street (S.E.R.) at 2.15 p.m.

Liverpool Engineering Society.—Excursion (continued).

Edinburgh Architectural Association.—Annual Excursion—Mount Stuart House, Rothesay Castle, St. Blane's Chapel, Rothesay Church.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

9,903.—HINGES: *W. Phillips.*—This patent deals with a simple form of hinge for self-closing doors and the like. The invention consists mainly in leaving out the central knuckle or swivelling-eye of the hinge, and fitting in this opening a spiral spring, which is coiled round the pin of the hinge, with its two ends projecting into the flaps of the hinge. On opening the door the spring is subjected to torsion, and the reaction thus set up tends to close the door.

10,678.—PAVING: *P. Jackson and another.*—Relates specially to paving the covers of access shafts to sewers, &c., and consists in using blocks of stone, cement, or wood fitted in a frame, with their surfaces flush with the surrounding pavement, no metal appearing on the surface. The frame is adapted to be lifted by suitable keys.

11,132.—GLUE-POT: *J. Royle.*—This invention deals with a self-heating portable glue-pot, constructed as follows:—The water-vessel common to glue-pots is surrounded by a casing in which is fitted a grate or fire-basket for holding a supply of carbonaceous fuel, such as charcoal. Air inlet and outlet holes are made in the casing, and some minor modifications are mentioned for regulating the draught.

12,723.—FIRE-GRATES: *G. Shackleton.*—For economising the consumption of fuel in domestic fire-grates. A false bottom, more or less L-shaped, has claws which engage on one of the front bars of the grate at the bottom, the back simply leaning against the back of the grate.

12,738.—WINDOWS: *W. Flitcroft.*—Refers to improvements in sliding and swivelling windows. Window-sashes of the usual form are fitted with metal racks, in which operate spur pinions mounted on pins secured to the casing on each side. The racks of the opposite sashes are arranged on each side of the pinions, so that both are operated simultaneously by the pinions, and when centrally disposed will allow of the sashes being swivelled. To prevent draughts between the stiles and frame, sliding pieces, operated by screws, are provided.

12,905.—TILES: *C. Knox.*—Consists in making the nail-holes in roofing tiles of a key-hole shape, the enlarged portion being at the lower end, so that a tile may be pushed up and taken off without removing the nail.

21,735.—CEMENT: *E. Weckwarth.*—Relates to the manufacture of moist or plastic cements for producing artificial stone with a glossy surface, such cement being composed of a mixture of albumen, water, alkali, lime, potash, alum, borax, and plaster-of-Paris, compounded together in suitable quantities.

6,501.—WATER-PIPES: *M. Schroeder.*—To prevent the bursting of water-pipes through the action of frost, the principal water-pipe has branch pipes connected which terminate in a coil at a convenient distance, the said coil being enclosed in a case which may be heated by a lamp. A tap is fixed at a point between the branch pipes to control the flow, and the water is thus kept at a sufficiently high temperature.

NEW APPLICATIONS FOR LETTERS PATENT.

MAY 27.—10,352, G. Shaw and others, Plaster-of-Paris.—10,353, S. Green, Anti-frictional Arrangements for Band-saws.—10,379, J. Kirtley, Jointing of Stone or Earthenware Pipes.—10,387, G. Moseley, Gate Fastenings.—10,388, G. Moseley, Door and Gate Locks and Latches.—10,390, W. Putman, Cisterns.—10,405, T. Gilloch and H. Pyle, Lavatory Fittings.—10,410, C. Horton, Wood-screw.—10,427, R. Spring, Cistern for Water-closets.—10,468, A. Roberts, Substitute for Tiles for covering walls, &c.—10,479, J. Holt, Window Sash Fasteners.

MAY 28.—10,487, J. Midgley, Weather-bars or Draught-excluders for Doors and Hinged Windows.—10,500, C. Shakeshaft, Window Sash and Line.—10,511, W. Boydell, Affixing Doors and Gates to Brick, Stone, and like Walls.—10,519, D. Bell, Window-opening Fittings.—10,555, C. Raleigh, Boring-bits for Rock-drills.

MAY 29.—10,617, J. Fearon and E. Lynch, Slating and Tiling.—10,649, T. Dennis, Adaptor and Connector to facilitate the construction and erection of portable or permanent iron buildings, walls, and fences, and of its adaption to the same.

MAY 30.—10,711, C. Schnakenburg, Paving Blocks.—10,742, W. Birch, Chimney and Ventilating Cowls.—10,770, W. Bates, Windows.

MAY 31.—10,786, J. Ellis, Combination Marking, Cutting, and Mortising Joiners' Gauge.—10,788, D. McLean, Fixing and Regulating thin Cutting-irons for Planes.—10,834, E. Traies, Water-waste Preventors and Flushing-tanks.

JUNE 1.—10,862, T. Jarrett, Constructing Floors, Ceilings, &c.—10,884, W. & H. Badger, Ratchet Braces.—10,944, K. Hürtgen, Skylights.

PROVISIONAL SPECIFICATIONS ACCEPTED.

6,807, W. Everard, Sash-fasteners.—8,504, A. Eichhorn, Machinery for Moulding Dutch Tiles.—8,520, R. Frame, Gully, Grease, and like Traps and Sinks.—8,709, W. Roberts, The Strebor Treatment of Water-pipes.—9,077, E. Barrachin, Jun., Facilitating the Construction of Brick Arches for Floors, &c.—9,129, R. Leggott, Securing Sash-pocket Pieces.—9,251, H. Holwill and J. Martin, Machines for Dressing Bricks, &c.—9,288, G. Morgan, Windows.—9,502, E. Beech, High-pressure Boilers and Water-pipes, or Tubes to Prevent Bursting from Frost.—9,628, B. Hodges, Saw-frames.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

10,620, E. Nicholls, Ventilator.—13,732, J. Shanks, Water-closet Apparatus.—19,132, W. Wilford, Brick-kilns.—3,189, J. Curtin, Ventilation Apparatus.—8,558, C. Tondeur, Glass for Skylights, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	8/0/0	0/0/0
Teak, E.I. ..load	10/0/0	16/0/0
Sequoia, U.S. ft. cu	1/10	2/8
Ash, Canada load	2/15/0	4/0/0
Birch, do.	2/5/0	3/10/0
Elm, do.	3/10/0	4/15/0
Fir, Dantsic, &c.	2/15/0	3/10/0
Oak, do.	2/15/0	4/15/0
Canada	6/0/0	7/10/0
Pine, Canada red	0/0/0	0/0/0
Do. Yellow ..	2/15/0	3/0/0
Lath, Dantsic, fath	4/10/0	5/10/0
St. Petersburg..	5/0/0	6/10/0
Wainscot, Riga, &c., log	3/0/0	5/5/0
Odessa, crown....	3/0/0	5/5/0
Deals, Finland 2nd & 1st std 100	7/0/0	8/10/0
Do. 4th & 3rd ..	7/0/0	8/0/0
Do. Riga	7/0/0	8/0/0
St. Petersburg, 1st yellow ...	9/10/0	12/0/0
Do. 2nd yellow	7/10/0	9/0/0
Do. white	8/0/0	9/10/0
Swedish	7/0/0	15/10/0
White Sea.....	7/10/0	15/0/0
Canada, Pine 1st	22/0/0	24/0/0
Do. do. 2nd....	16/10/0	17/10/0
Do. do. 3rd, &c.	8/5/0	10/10/0
Do. Spruce, 1st..	9/0/0	10/10/0
Do. do. 3rd and 2nd	6/10/0	7/10/0
New Brunswick	6/0/0	7/0/0
Battens, all kinds	5/0/0	21/0/0
Flooring boards, sq., 1 in. prep. 1st.....	0/9/6	0/14/6
Do. 2nd	0/6/6	0/11/6
Other qualities—	0/4/6	0/7/6
Cedar, Cuba ..ft.	/3	/4
Honduras, &c.	/3	/4½
Mahogany, Cuba	/3½	/6
St. Domingo, cargo av.	/3½	1/0
Mexican do. do.	/3	/4
Tobasco do. do.	/3½	/6
Honduras do. ..	/3½	/5½
Box, Turkey ton	4/0/0	15/0/0
Rose, Rio	7/0/0	16/0/0
Bahia	6/0/0	15/0/0
Satin, St. Domingo	0/0/5	0/1/0

TIMBER (*continued*).		
Satin, Porto Rico	0/0/6	0/1/6
Walnut, Italian....	0/0/3½	0/0/7

METALS.		
Iron—Pig, in Scotland .....ton	2/3/2½	0/0/0
Bar, Welsh, in London	5/12/6	5/15/0
Do. do. at works in Wales.....	5/2/6	5/5/0
Do. Staffordshire, in London.....	6/0/0	6/10/0
COPPER—British cake and ingot	45/0/0	45/10/0
Best selected ..	45/15/0	46/5/0
Sheets, strong..	52/0/0	0/0/0
Chili bars	42/6/3	42/11/3
YELLOW METAL lb	0/0/4½	0/0/4¾
LEAD—Pig, Spanish ....ton	20/10/0	0/0/0
English com. brands	20/8/9	20/11/3
Sheet, English, 6 lbs. per sq. ft. and upwards ..	21/10/0	0/0/0
Pipe	22/0/0	0/0/0
ZINC—English sheet .....ton	28/10/0	0/0/0
Vieille Montagne	29/10/0	0/0/0
TIN—Straits.....	62/0/0	62/10/0
Australian.....	62/15/0	63/5/0
English Ingots.	67/10/0	68/0/0
Banca.....	65/0/0	66/10/0
Billiton	64/10/0	65/10/0

OILS.		
Linseed .....ton	21/5/0	21/10/0
Cocoanut, Cochin	24/10/0	24/15/0
Do. Ceylon	22/15/0	0/0/0
Palm, Lagos	23/0/0	0/0/0
Rapeseed, English pale	22/15/0	23/0/0
Do. brown	21/10/0	0/0/0
Cottonseed ref. .	18/0/0	18/5/0
Oleine.....	20/10/0	21/10/0
Lubricating, U.S.	5/9/0	8/6/0
Do. black	4/6/0	6/6/0
TAR—Stockholm barrel	1/0/0	1/0/6
Archangel.....	0/15/6	0/0/0

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

MAY 30.—By *W. T. Marsh*: 59, Warwick Gardens, Kensington, u.t. 54 yrs., g.r. 81*l.*, r. 80*l.*, 825*l.*; Abingdon-rd., i.g.r. of 111*l.* 7s., u.t. 28 yrs., g.r. 7*l.* 7s., 60*l.*, 32, 34, 36, 38, Abingdon-rd., u.t. 28 yrs., g.r. 24*l.*, r. 126*l.* 10s., 900*l.*—By *Dyer, Son & Hilton*: 7 and 8, St. Leonard's-ter., Chelsea, u.t. 45 yrs., g.r. 16*l.*, r. 180*l.*, 2,050*l.*; 10 and 12, Alfred-pl., Kensington, u.t. 29½ yrs., g.r. 16*l.*, r. 175*l.*, 1,500*l.*—By *Newbon & Co.*: 26 to 40 (even), Claxton-grove, Kensington, u.t. 97 yrs., g.r. 40*l.*, 1,610*l.*; "Meadowlead," Station-rd., Harrow, u.t. 84 yrs., g.r. 10*l.*, r. 30*l.*, 275*l.*; 20, Brand-st., Holloway, f., r. 15*l.* 12s., 105*l.*; 140 to 146 (even), Corbyn-st., Hornsey Rise, u.t. 75½ yrs., g.r. 25*l.* 4s., r. 120*l.*, 1,140*l.*; 32, Salisbury-rd., Highgate, u.t. 49 yrs., g.r. 7*l.*, e.r. 30*l.*, 190*l.*; 53, Ambler-rd., Finsbury Pk., u.t. 74 yrs., g.r. 5*l.*, r. 36*l.*, 325*l.*; 56, Regina-rd., u.t. 69½ yrs. g.r. 6*l.* 6s., e.r. 34*l.*, 265*l.*; 53, Springdale-rd., Stoke Newington, u.t. 76 yrs., g.r. 5*l.*, r. 35*l.*, 335*l.*; 10, 12, 14, Dunn-st., Kingsland, u.t. 18½ yrs., g.r. 15s., 215*l.*; 35, Upper Pk.-st., Barnsbury, u.t. 13½ yrs., g.r. nil, r. 36*l.*, 140*l.*; 1, 2, 3, and 4, Barnsbury Mews, u.t. 13½ yrs., g.r. nil, r. 108*l.*, 300*l.*

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.*]

ABERGAVENNY.—For the supply of limestone road-metal, for the Rural District Council. Mr. John Gill, District Surveyor, North street, Abergavenny:—

	Per ton. s.	d.	
Field & Mackay, Clee Hill stone, Ludlow—			
To go to Pontnas Station	7	0	Unbroken.
,, ,, ,, ...	9	9	Broken.
Clydach and Abergavenny Lime and Stone Co., Abergavenny—			
Pontnas Station	4	9	
Pandy Station.....	4	4	
Llanvihangel	4	2	
Abergavenny Junction	3	4	
Great Western Railway	4	2	
Penpergwyn	4	1	
Raglan	5	3	
Brecon-road	3	3	
Govilan	3	1	
Llanoves Wharf.....	4	5	

ALNWICK.—Accepted for the erection of three labourers cottages at Coldharbour, Northumberland, for Sir Edward Grey, Bart., M.P. Mr. Geo. Reavell, architect, Alnwick:—

J. & G. Green, Warkworth £642 10 0

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Dual Schools, &c.	Pembroke Dock Intermediate School	10l. 10s.	July 15

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Sewers Ironwork	Vestry of St. George the Martyr, Southwark	*Official*	June 17
Additions to Schools, Nantyfyllon, near Bridgend	Cwmdu, &c. Sch. Bd.	E. W. Burnett	June 18
Pipe Sewer, Richmond Park-road, Alton	Solihull (Birmingham) R.D.C.	A. E. Currall	do.
Fourteen Cottages, No Place, Beamish	West Pelton Co-op. Soc.	do.	do.
Additions to Viaduct Hotel, Crumlin, Aberdare	...	T. Roderick	do.
*Paving Works	Tottenham U.D.C.	P. E. Murphy	do.
*Road Materials	Lewisham Bd. of W.	*Official*	do.
*Construction of Sewer	do	do.	do.
Alterations to Council Chamber	Coseley U.D.C.	C. W. Shackleton	June 19
Sewer, Stapleton Main Road, near Bristol	Stapleton U.D.C.	A. J. Saise	do.
Cast-iron Socket Pipes and Castings, near Sheffield	Wortley R.D.C.	G. E. Beaumont	do.
Additions to Schools, Lowther-street	Carlisle School Board	G. D. Oliver	do.
Additions to Farm Buildings, Bruckhills, Aberdeen	C. & P. H. Chalmers	do.	do.
Sewer, Mainstone-avenue	...	Jas. Paton	do.
*Wood Paving Works	Westminster Vestry	G. R. W. Wheeler	do.
Cast-iron Gas Mains	Worthing Gas Co.	*Official*	do.
Additions to Workhouse	Cheltenham Union	do.	do.
*Smiths' Shop, Belle Vue	Midland Railway	do.	June 20
Additions to Infirmary	Dewsbury Union	W. Hanstock	do.
Road and Sewer Works, Llwynypia	Ystradyfodwg U.D.C.	W. J. Jones	do.
Cast-iron Socket Pipes	Blaenavon(Mon)U.D.C.	T. D. Steel	do.
Church (St. Margaret's), Burnley	...	Thos. Bell	do.
Additions to Dispensary, Shandon-street	Cork Union	...	do.
Additions to Schools, Alresford	Rev. W. C. Bache	...	do.
Additions to Corn Mill, Kilrea, Ireland	Mercers' Company	...	do.
Independent Chapel, Llangynog, near Oswestry	Jno. Hughes	...	June 21
Pipe Sewers, &c.	Swinton(Yorks)U.D.C.	R. Fowler	do.
Schools	Chepstow School Bd.	W. Evid	June 22
Stabling and Additions, Loveldene, Copthorne, Surrey	...	W. Buck	do.
Covered Court, Steading, &c. Tyninghame Estate, Dunbar	...	G. Gordon & Sons	do.
Dye House, Warehouse, &c. Fairweather Green, Bradford	...	S. Spencer	do.
Kerbing, Channelling, &c. Anderton Park-road, Moseley	King's Norton R.D.C.	R. Godfrey	June 24
*Sewage Works, &c. &c.	Portishead U.D.C.	T. J. Moss Flower	do.
*Extension of Day Room, Lavatories, &c.	Bucks County Lunatic Asylum	R. J. Thomas	do.
Main Sewer, Wallows-lane, Bescot	Walsall Corporation	*Official*	do.
Whinstone Road Metal, near Scarborough	Sherburn R.D.C.	do.	do.
*Road Works	Limehouse Board of W.	do.	do.
*Supply of Bricks	Bermondsey Vestry	do.	do.
*Coals and Coke	Borough of Croydon	do.	June 25
*Tar Paving Works	Bromley U.D.C.	do.	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Supply, &c. of Lamps	Buckhurst Hill U.D.C.	*Official*	June 25
*Painting Works, Town Hall	Chelsea Vestry	do.	do.
*Petty Sessional Court, &c. Hatfield	Hertford County Coun.	U. A. Smith	do.
*Wood Paving Works	Willesden District C.	O Claude Robson	do.
*Urinal, Nunhead	Camberwell Vestry	O. S. Brown	do.
*Paving Works	do.	do.	do.
*Supply of Materials	St. Martin-in-the-Fields Vestry	C. Mason	do.
Sewerage Works, Earl's Barton	Wellingborough R.D.C.	Sharman & Archer	do.
Academy Building	Dumfries Burgh. Sch. Bd.	F. J. C. Carruthers	do.
*Turret Clock	Borough of West Ham	L. Angell	do.
*Granite Spalls and Broken Granite	Hackney Vestry	J. Lovegrove	June 26
*Broken Granite	North Walsham U.D.C.	*Official*	do.
*Electrical Generating Station Buildings, Engine and Boiler House, &c. Bentinck-street	Birkenhead Corp.	J. N. Shoolbred	June 27
Making-up Junction-road	Dorking U.D.C.	G. S. Mathews	do.
Cement Footpaths, Pine-street, &c.	Jarrow U.S.A.	J. Petree	do.
*Alterations to Schools	Burton-on-Trent Sch. Bd.	R. Churchill	June 28
*Making-up Roads, &c.	Walthamstow U.D.C.	G. W. Holmes	do.
*Granite Kerb	do.	*Official*	do.
*Three Groynes	Level of Romney Marsh	do.	do.
Schools, Llandilo	...	D. Jenkins	June 29
Road Materials	Chesham U.D.C.	C. L. Whitehead	July 1
Additions to School, Bargoed	Gelligaer School Bd.	James & Morgan	do.
Drainage Works, Brora	Sutherland County C.	J. Baxter	do.
*Heating and Ventilating New School of Art, &c.	Boro of Maidenhead	E. J. Shrewsbury	do.
*Additions to Schools	New Shoreham School Board	Loader & Long	do.
*Broken Granite	Hanwell U.D.C.	*Official*	do.
*Repairs and Painting, Herne Bay Schools	South Metropolitan School District	do.	do.
*Alterations, &c. to The Limes	Barnes U.D.C.	do.	do.
*Post Office, Newbury	Coms. of H. M. Works	do.	July 2
*Alterations to Buildings	Poplar Union	W. A. Hills & Son	July 3
*Hospital, Lewisham	Met. Asylum Board	E. T. Hall	July 5
*Extension of Drainage Works	Hemel Hempstead Union	T. F. Woodman	July 6
*Art Galleries	Glasgow Association for the Promotion of Art and Music	Douglas, Hunter, & Whitson	July 18
*Alterations to Town Hall	Manchester Corp.	A. Waterhouse & Son	No date
*Furnishing Schools	Burnley School Board	W. A. Quarmby	do.
Eleven Houses, Gilfach Goch, near Cardiff	Jno. Thomas	J. L. Hutchins	do.
Twenty-five Cottages, Cwmsyflog, New Tredegar, Mon.	Local Building Society	...	do.
Rebuilding Chapel, Charles-street, Cardiff	...	Jones & Co.	do.
*New Schools	Lavenham School Bd.	J. S. Corder	do.
*Painting Works, Gosport District	War Department	*Official*	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Prime Cost Clerk	Battersea Vestry	110l.	June 21
*Clerk of Works	Carlisle School Board	...	June 29
*Manager of Properties on Improvement Scheme Area	Birmingham City Council	300l.	July 1

Those marked with an asterisk (*) are advertised in this Number. ***Competition, p. iv.*** ***Contracts, pp. iv., vi., vii., and viii.*** ***Public Appointments, pp. xviii and xx.***

ABERDEEN.—Accepted for erecting police-stations at Culter, Insch, Ellon, and Strathdon, for the Standing Joint Committee of the County of Aberdeen. Mr. John D. Watson, C.E., County Buildings, Aberdeen. Quantities by Engineer:—

Culter Station.

Masonry.—John Selvwright	£598 10 0
Joinery.—William Malcolm	230 10 0
Slating.—McGregor & Shand	31 0 0
Plastering.—Scott & Sellar	86 12 0
Plumbing.—George Campbell	58 15 0
Painting.—J. & S. Fyfe	11 15 0
Total	£1,017 2 0

[All of Aberdeen.]

Insch Station.

Masonry.—W. & R. Cumming, Insch	£348 0 0
Joinery.—W. J. Leslie, Insch	135 17 6
Slating.—Geo. Glennie, Insch	50 10 0
Plastering.—James Selvwright, Inverurie	49 10 0
Plumbing.—John Wilson, Huntly	36 18 0
Painting.—J. Sutherland & Son, Inverurie	10 7 6
Total	£631 3 0

Ellon Station.

Masonry.—Alex. Forbes, Ellon	£265 8 6½
Joinery.—William Auld, Ellon	158 0 0
Slating.—William Fyvie, Ellon	53 3 3
Plastering.—Stuart & Co., Peterhead	43 0 0
Plumbing.—Thom & Strachan, Aberdeen	71 9 6
Painting.—Alex. Ferguson, Peterhead	13 6 8
Total	£604 7 5½

Strathdon Station.

Masonry.—Wm. Lauder, Inverurie	£384 0 0
Joinery.—Wm. Stewart, Inverurie	151 10 0
Slating.—Robert Wright & Son, Aboyne	50 18 0
Plastering.—Wm. Rust, Huntly	52 0 0
Plumbing.—John Wilson, Huntly	40 0 0
Painting.—Alex. Robertson, Huntly	12 15 6
Total	£691 3 6

ACCRINGTON.—Accepted for the erection of a bakery for the Accrington and Church Industrial Co-operative Society, Ltd. Messrs. Haywood & Harrison, architects, Accrington. Quantities by the architects:—

Bricklaying and Masonry.—Thos. Cronshaw, Accrington	£966
Slating.—John Roberts, Accrington	61
Plumbing and Glazing.—John Robinson, Accrington	79
Carpentry and Joinery.—Accrington and Church Industrial Co-operative Society	330

ALNWICK.—Accepted for the erection of a pair of houses, Morpeth, for Mr. T. Sheel. Mr. Geo. Reavell, jun., architect, Alnwick and Morpeth:—

Masonry and Bricklaying.—T. W. Middlemiss	£310 14 2
Joinery.—G. & C. Haswell	170 0 0
Slating.—T. W. Athey	54 7 0
Plumbing.—Daglish & Son	85 0 0
Plastering.—R. Fairbairn	45 5 0
Painting.—R. Jackson	21 0 0
Total	£686 6 2

[All of Morpeth.]

BRIDLINGTON.—For additions, &c., to No. 36, High-street (Contract No. 1); also erection of business premises, North Back-lane, for Mr. Sawdon. Mr. J. Earnshaw, architect, Carlton House, Bridlington Quay:—

Contract No. 1.

J. Rennard	£257 10
F. Postill*	£225 0

Contract No. 2.

J. Rennard	£455 10
J. T. Foster	452 5
J. Sawdon	£380 0
F. Postill*	345 0

[All of Bridlington Quay.]
* Accepted.

BOGNOR.—For erecting a residence at Bognor, Sussex, for Mrs. Ward. Messrs. Kidner & Berry, architects, London:—

W. Burrell	£2,269 0	T. Start	£1,668 3
S. J. Scott	2,173 0	T. Start (amended tender)*	1,725 0
W. Wallis	1,949 0		

* Accepted.

BRIGG (Lincs.).—For additions to the "Angel" Hotel. Messrs. Freeman, Son, & Gaskell, architects, 11, Carr-lane, Hull:—

David Robinson	£490 0 0	Full price.
G. Dent, Brigg, Lincs.*	370 0 0	,, ,,
John Drury	298 10 0	Bricklayer and plasterer.
T. Wilde & Sons	25 0 0	Slaters only.
T. Smith & Co.	24 10 0	,, ,,
W. Dawber & Son	24 0 0	,, ,,

* Accepted.

BRISTOL.—For new warehouse, offices, and caretaker's-house, at the Whitehouse-street Tannery, Bedminster. Mr. Herbert J. Jones, architect, 12, Bridge-street, Bristol:—

	Gross Amount of Tender.	Credit for Materials on Site.
Eastabrook & Sons	£4,040	£40
W. Cowlin & Son	3,885	50
W. Church	3,618	52
G. H. Wilkins	3,539	50
E. Walters	3,675	195
J. E. Davis	3,538	120
R. Wilkins & Sons	3,449	56
G. Humphreys	3,389	20
J. Perrott (accepted)	3,390	30

[All of Bristol.]

BURGESS HILL (Sussex).—For the supply of 1,000 tons surface picked flints, for the Urban District Council:—

	Per ton. s. d.	
Hall & Co.	7 5	for 200 tons.
James Groves, Southwick, Sussex (400 tons accepted)	7 0	,, 700 ,,
T. & D. Scott	7 11	,, 500 ,,
William Hudson, Brighton (300 tons accepted)	7 0	,, 1,000 ,,
William Stanbridge, Broadwater, Sussex (300 tons accepted)	7 0	,, 500 ,,

BURNLEY.—Accepted for additions to the Victoria Hospital, for the Board of Management. Mr. Wm. Hy. Colbran, architect. Quantities by architect:—

Masonry and Bricklaying.—Joseph Whittam	£220 0
Joinery and Building.—John Haworth	150 0
Slating, &c.—Whitaker Ormerod	22 8
Painting and Plastering.—Preston & Son	42 5
Ironwork.—William Wathon	20 0
,, John Bulcock	6 0
Plumbing, Glazing, &c.—Estimated cost	89 7
Total	£550 0

[All of Burnley.]

BURTON-ON-TRENT.—Accepted for building house and two cottages at Horninglow, for Mrs. Loverock. Mr. R. E. Carpenter, architect, Burton-on-Trent,:—

Forbes, Horninglow	£590

BURTON-ON-TRENT.—For building house and stable, Outwoods, for Mr. Haywood. Mr. R. E. Carpenter, architect, Burton-on-Trent, :—

Hodges	£422 0	Kershaw	£371 10
Lelly	401 0	Parker*	357 10
Owen	372 0		

* Accepted.
[All of Burton.]

CORNHILLS (Northumberland).—Accepted for the erection of a farmhouse, at Cornhills, Kirkwhelpington, for Mr. Thos. Thornton. Mr. George Reavell, architect, Alnwick:—

Martinson & Welton, Bellingham, Northumberland	£1,059

CRENDON (Bucks.).—For the erection of two brick and steel bridges for the Bucks. County Council. Mr. R. J. Thomas, County Surveyor, Exchange Buildings, Aylesbury:—

	Ironfoundry. £ s. d.	Total. £ s. d.
Dynes, Steel & Son	655 0 0	3,300 0 0
F. C. Caffin	797 1 0	2,675 4 0
E. C. & J. Keay, Birmingham	453 3 6*	2,273 3 6
G. Double	698 12 9	2,210 12 7
S. Grist, Limited	478 0 0	2,166 0 0
J. Wells & Son	765 0 0	1,998 0 0
Ward & Cannon	473 3 6	1,845 12 8
H. Hill, Maidenhead	577 11 0	1,767 9 11
J. O. Brettell	592 0 0	—
Peirson & Co.	574 10 0	—
T. Woodall	572 7 0	—
A. J. Ellis	440 9 6	—

* Accepted.
[Engineer's estimate, £1,845 17s. 11d.]

CROYDON.—For alterations and repairs to "Dunmere," Sydenham-road (North). Mr. A. Broad, architect, 3, High-street, Croydon:—

E. P. Bulled & Co.	£644
S. Page	557
D. W. Barker	£415
Hanscomb & Smith*	335

* Accepted.

CROYDON.—Accepted for additions to Berkley Lodge, Upper Addiscombe-road. Mr. A. Broad, architect, 3, High-street, Croydon:—

Hanscomb & Smith	£268

[No competition.]

CULLOMPTON (Devon).—For the erection of a billiard-room at Dellford House, for Mr. Albert Abid. Messrs. Edward Ellis & Son, surveyors, &c., Bedford Chambers, Exeter. Quantities by the surveyors:—

Nicks Bros.	£537 10
Hy. Phillips	525 0
Stevens & Son, Exeter*	£512 0
Williams	507 10

* Accepted
[Surveyor's estimate, £527 17s. 7d.]

DATCHET (Bucks.).—For the erection of brick and steel bridge, for the Bucks. County Council. Mr. R. J. Thomas, County Surveyor, Exchange Buildings, Aylesbury:—

	Ironfoundry. £ s. d.	Total. £ s. d.
Dynes, Steel, & Son	280 0 0	1,315 0 0
F. C. Caffin	352 2 0	1,144 13 0
S. Roberts	285 0 0	904 0 0
E. C. & J. Keay, Birmingham	205 14 0*	865 14 0
S. Grist, Ltd.	225 0 0	853 0 0
W. Randall	283 0 0	886 5 10
J. R. Atkins	—	587 0 0
G. Double	294 4 6	874 4 6
H. Hill, Maidenhead	258 4 0	775 2
J. O. Brettell	254 0 0	—
T. Woodall	240 14 3	—
Peirson & Co.	240 10 0	—
A. J. Ellis	214 7 6	—

* Accepted.
[Engineer's estimate, £728 10s.]

DERBY.—Accepted for the erection of new works for Messrs. Bemrose & Sons, Limited, Derby. Mr. E. R. Ridgway, architect Long Eaton:—

Ford & Co., Talbot-street, Derby	£10,559
Wrought Ironwork.—Eastwood, Swingler, & Co., Derby	1,342
Cast Ironwork.—Wm. Abell, Brook-street, Derby	769
Heating.—J. King, Limited, Liverpool	785
New Engine Houses.—Ford & Co., Talbot-street, Derby	693

DUNGLOE (Ireland).—Accepted for improvements to the parish church. Mr. E. J. Toye, architect, Strand, Londonderry:—

James McFadden, Letterkenny	£440

DUNSTON (Northumberland).—Accepted for alterations to Dunston Steads farm-house and farm buildings, for Eyre's Trustees. Mr. George Reavell, jun., architect, Alnwick:—
M. Appleby Embleton £410 17 1

ENFIELD.—For erecting a school building and appurtenances, Seventh Avenue, Bush Hill Park, Enfield, for the Enfield School Board. Mr. G. E. T. Laurence, architect, 181, Queen Victoria-street, E.C.:—

A. F. Almond	£10,628 0	L. & W. H. Patman	£9,633 0
Batley, Son, & Holness	10,554 0	P. Hart	9,594 3
Knight & Son	10,442 0	White & Son	9,220 0
Gray, Hill, & Co.	9,999 0	Fairhead & Son	9,214 0
C. Wall	9,980 0	C. H. Hunt	9,090 0

FOLKESTONE.—For the erection of school (Science and Art), Grace Hill, for the Town Council. Mr. Frank Newman, architect, 4, Bouverie-square, Folkestone:—

G. E. Wallis & Sons	£7,725	Hayward & Paramor	£7,270
J. Q. Pelts & Son	7,725	G. Lewis & Son	7,250
Herbert Stiff	7,585	H. W. Hoad	7,235
G. H. Denne & Son	7,520	H. M. Moody, Folkestone (accepted)	6,524
T. L. Fearon	7,500		

FOLKESTONE.—For the supply of road materials, kerb, &c. (18,000 ft. run), for the Corporation. Mr. John White, Borough Engineer, Folkestone:—

	Kerb. s. d.	Channel. s. d.
Wm. Hudson	1 0½	1 0½
J. Goodchild & Co.	1 0	11½
Kaltenbach & Schmitz	1 0	11½
Wm. Griffiths	11½	11½
A. & F. Manuelle	11½	11½
John Sheehan	11½	11
Wm. W. Smith	11½	11
E. J. Van Praagh & Co.	11½	11
E. Jarrett	11½	11
Nowell & Robson	11½	10½
Blichfeldt & Co.	11	10½
Cooper Bros., London (accepted)	10½	10

GLOUCESTER.—For the construction of a reservoir, &c., (two contracts), for the Corporation. Mr. W. Fox, C.E., 5, Victoria-street, S.W.:—

J. H. Firbanks	£15,280 0 0	Geo. Bell	£7,149 0 0
Alfred Ring	13,967 0 0	Jones & Fitzmaurice	6,889 0 0
Geo. Lawson	9,696 0 0	R. C. Brebner	6,258 0 2
Geo. Law	9,185 0 0	Cruwys & Hobrough, Gloucester*	6,176 1 0
W. C. Shaddock	9,120 0 0	T. J. Davis	5,770 17 10
L. P. Nott	8,700 0 0	J. A. Ewart	5,709 19 7
W. Jones	8,023 0 0		
S. Ambrose	7,975 0 0		

* Accepted.

GLOUCESTER.—For the supply and delivery of 2,800 tons 14 in. c.i. socket pipes, &c., for the Corporation. Mr. Wm. Fox, C.E., 5, Victoria-street, S.W.:—

Exors. of Chas. Jordan	£13,717 3 0	Staveley Coal and Iron Co.	£11,481 0 0
J. Oakes & Co.	12,549 13 9	J. & S. Roberts	11,467 8 9
Macfarlane, Strong, & Co.	12,316 9 11	C. E. & H. M. Peel	11,294 3 10
D. Y. Stewart & Co.	12,041 12 6	Stanton Iron Co.	11,010 5 0
Maclaren & Co.	11,894 17 7	Cochrane & Co. Dudley*	10,373 12 6
T. Spittle & Co.	11,715 10 5		

* Accepted.

GREAT YARMOUTH.—For alterations to school buildings, Fritton, for the Managers. Messrs. Bottle & Olley, architects, 5, Queen-street, Great Yarmouth. Quantities by architects:—

J. F. W. Bray	£248 0 0	G. W. Beech	£209 0 0
H. Lacey	245 0 0	Cockrell Bros., Gorleston (accepted)	200 10 6
R. Davey	245 0 0		
F. Grimble	232 0 0		

GREAT YARMOUTH.—For new residence for Mr. W. Palgrave Brown, Southtown. Messrs. Bottle & Olley, architects, Great Yarmouth. Quantities by architects:—

G. E. Hawes	£1,899 0	J. Balls	£1,661 0
J. F. W. Bray	1,768 0	G. W. Beech	1,635 0
Carter & Wright	1,713 0	G. T. Flaxman	1,605 0
J. Ward	1,690 0	F. Grimble	1,588 0
T. Howes	1,689 0	G. Beckett, Great Yarmouth*	1,494 15
H. Lacey	1,677 0		

* Accepted.

GRIMSBY.—For the erection of three houses, Cressey- and King Edward-streets:—

Ion & Lewis	£382	W. H. Emerson	£287
Cook	320	Dixon	281
J. A. Thomas	294	G. & J. Smith	280
Walker	290	J. Leaning, Grimsby*	270

* Accepted.

HARTLEPOOL.—Accepted for the construction of sewer, &c., Hart-street, &c. (6 contracts), for the Corporation. Mr. H. C. Crummack, C.E., Borough Engineer, Hartlepool. Quantities by Engineer:—

Hart-road Sewer.

Jos. Howe & Co., West Hartlepool £800 11 11

For Tar Paving on Town Moor.

Asphaltic Limestone Concrete Co., Ltd., Birmingham ..... 1s. 8d. per yard super.

Macadamising and Channelling Sea View Terrace.

H. Curry & Son, Hartlepool £418 16 0

Flagging and Kerbing in Commercial-street.

R. J. Marshall, Hartlepool £58 3 8

Flagging, Kerbing, and Channelling Cleveland-road (part).

R. J. Marshall, Hartlepool £363 4 9

HEREFORD.—For the erection of stables, for Messrs. Millar Bros. Mr. G. H. Godsell, architect, Hereford:—

R. Andrews & Sons	£350 0 0	E. W. Wilkes*	£346 0 0
James Davis	346 10 6		

* Accepted.

HEREFORD.—For the erection of a memorial hall, and extension of dormitory, at the Working Boys' Industrial Home. Mr. G. H. Godsell, architect, Hereford. Quantities by Mr. Henry Smith:—

Beavan & Hodges	£1,793 0 0	W. P. Lewis & Co., Hereford*	£1,650 0 0
James Davis	1,758 10 0	David Smith	1,606 18 9
W. Bowers & Co.	1,654 0 0		

For further Dormitory Extension.

W. P. Lewis & Co.* £310

* Accepted.

HULL.—For the erection of St. Wilfrid's Church, The Boulevard, Hull. Messrs. Smith, Brodrick, & Lowther, architects, Hull. Quantities by Mr. J. Watson, Hull:—

A. Lyons	£3,672 5	G. Jackson & Son	£3,525 0
F. Blackburn & Son	3,649 0	D. Robinson	3,480 0
T. Goates	3,605 0	J. Drury	3,478 0
Skinner	3,589 10	F. Hall	3,348 0
F. Southern	3,583 0	Colley & Levitt, Hull*	3,222 0
G. Houlton	3,565 0		

* Accepted.

KENCHESTER (Nr. Hereford).—Accepted for new drainage works at Kenchester Schools, for the Trustees of Lady Southampton's Charity. Mr. G. H. Godsell, architect, Hereford:—
R. Andrew's & Son, Hereford £182 8

KILLARNEY (Ireland).—For the construction of 3,986 yards pipe sewers, &c., for the Town Commissioners. Mr. Thomas Scott, C.E., Killarney. Quantities by Engineer:—

Gallwan & McIntosh	£3,386 5 4	Michael Warren, Killarney	£1,820 0 0
J. V. Driscoll	2,185 17 2	Jno. Cunningham	2,112 19 0
W. Johnson	1,972 17 0	J. Hastings Peet	1,787 0 0

* Accepted.

LISCARD (Cheshire).—Accepted for excavating and forming a lake, Central Park, for the Wallasey Urban and District Council. Mr. A. Salmon, C.E., Public Offices, Egremont:—
John Shaw, Priory-street, Birkenhead £994 6 3

LONDON.—For paving Ommanney-road, and a portion of Arbuthnot-road, St. Paul, Deptford, for the Board of Works:—

Arbuthnot-road.

George James Clark, jun.	£1,246	John Mowlem & Co., of Grosvenor Wharf, Westminster, S.W.*	£880
Robertson & Grant	1,034		
Fry Brothers	953		

Ommanney-road.

George James Clark, jun.	£1,506	John Mowlem & Co., of Grosvenor Wharf, Westminster, S.W.*	£993
Fry Brothers	1,227		
Arthur Thomas Catley	1,195		
Robertson & Grant	1,175		

* Accepted.

LONDON.—For a covered stand, dressing-rooms, &c., in Palliser-road, West Kensington, W., for the Queen's Club, Limited. Mr. Alexander Payne, architect, Norfolk House, Victoria Embankment, W.C.:—

Ironwork.

Matthew T. Shaw & Co.	£956 0	St. Pancras Ironwork Co.	£738 0
H. Young & Co.	750 0	Drew, Bear, Perks, & Co.*	617 1
Richard Moreland & Son	750 0		

* Accepted exclusive of carpenters' work.

LONDON.—For repairs and decorations at "Broadlands," Streatham Hill, for Mr. James Clarke. Mr. John Jas. Downes, architect, 11, The Parade, Lewisham High Road, S.E.:—

Sayer	£419
Candler & Son, 258a, Brixton Hill*	369

* Accepted.

LONDON.—For finishing and repairing No. 92, and premises in rear of Nos. 94 to 100, High-road, Balham, S.W., and sundry other works, for Mr. F. H. Ayres. Mr. John Groom, architect, No. 2, Broad-street-buildings, Liverpool-street, E.C. Quantities supplied by Mr. Henry Theobald, No. 48, Finsbury-pavement, E.C.:—

Mattock Bros.	£1,028	Stimpson & Co.	£980
H. L. Holloway	988	F. Voller (accepted)	890

LONDON.—For the erection of a warehouse on the site of Nos. 39 and 41, Worship-street, E.C., for Mr. A. Berliner. Mr. John Groom, architect, No. 2, Broad-street-buildings. Liverpool-street, E.C. Quantities supplied by Mr. Henry Theobald, No. 48, Finsbury-pavement, E.C.:—

Stimpson & Co.	£3,200	H. L. Holloway	£3,000
B. E. Nightingale	3,077	Patman & Fotheringham	2,936
Killby & Gayford	3,060	Mattock Bros. (accepted)	2,888

LONDON.—For making up Beresford-road, Pemberton-road (1st section), and Seymour-road, for the Hornsey Urban District Council:—

	Beresford-road.	Pemberton-road. (1st section).
Thos. Adams	£1,195 8 2	£1,043 5 3
F. A. Jackson & Son	1,221 0 0	1,062 0 0
J. Bloomfield	1,198 0 4	1,035 1 4
Mowlem & Co.	1,372 0 0	1,192 0 0
W. Griffiths, Kingsland-road, N.*	1,158 14 11	1,003 10 0

* Accepted. Seymour-road not yet decided.

LONDON.—For the erection of new steam laundry and cottage, &c., at the infirmary, Bancroft-road, E., for the Guardians of Mile End Old Town, E. Mr. Charles F. Burden, architect, Bancroft-road, E. Quantities by Messrs. Stewart & Hewish, 66, Victoria-street, S.W., and 412, Mile-end, E.:—

Contract No. 1.

Geo. Barker	£7,642	H. J. Carter	£7,193
H. H. Sherwin	7,428	F. & F. J. Wood	7,139
W. Gladding	7,342	Kirk & Randall	7,062
C. Peek	7,339	Perry & Co.	6,827
T. White & Son	7,249	R. S. Cooper	6,574

Contract No. 2.—For the Supply and Erection of new Boilers and Machinery, &c.

W. J. Fraser & Co.	£9,037	Rosser & Russell	£7,179
Thomas & Taylor	8,305	J. Richmond & Co.	7,100
Manlove, Alliott, & Co.	8,260	Hunter & English	6,942
J. F. May & Co.	7,213	Easton & Anderson	6,743
Benham & Sons	7,204		

LONDON.—For alterations to Kilburn Town Hall for purposes of a new theatre. Messrs. Fowler & Hall, architects, 9, Serjeants' Inn, Fleet-street. No quantities supplied:—

Jackson	£2,940	J. P. Groome	£1,670
Hindle	2,324		

LONDON.—For building bachelors' chambers and clubhouse, St. James's. Messrs. Fowler & Hall, architects, 9, Serjeants' Inn, Fleet-street:—
J. P. Groome £15,000

LONDON.—For building a pair of villa residences at Chiswick, for Mr. W. T. Platt, 40, Radnor-street, Chelsea:—
J. P. Groome £850

LONDON.—For the supply of 20,000 ft. of 3-inch tooled York paving, for the Vestry of Mile End Old Town. Mr. J. M. Knight, Surveyor, Vestry Hall, Bancroft-road, Mile End-road, E.:—

	Per 100 ft. super.		Per 100 ft. super.
Bentley & Smith	£3 4 0	A. & F. Manuelle	£3 2 2
J. Farrar & Son, Ltd.	3 2 5	Trickett & Son	3 1 11
W. Griffiths	3 2 3	L. Somerfeld*	2 19 9

* Accepted.

LONDON.—For exterior painting, &c., at Pritchard's-road Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Craig	£245	White & Son	£127
Harvey	203	Marchant & Hirst	118
Unsigned	157	Harrison & Spooner	106
Silk & Son	137		

LONDON.—For exterior painting, &c., at Lant-street-road Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Lathey Bros.	£159 0 0	Nightingale	£98 0 0
Gurling	132 0 0	Johnson & Co.	92 8 4
Dove Bros.	130 0 0	Mid-Kent Building Co.	89 0 0
Leeks & Hooker	124 10 0	Marchant & Hirst	81 0 0

LONDON.—For exterior painting, &c., at Graystock-place Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Harrison & Spooner	£127 0	Johnson & Co.	£112 5
Willmot & Son	125 0	Hornett*	99 0
Dove Bros.	121 0	Craig	92 15
Marchant & Hirst	114 19	G. H. Rowe	67 10

* Accepted.

LONDON.—For exterior painting, &c., of Netherwood-street Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Yerbury & Son	£218 0 0	Chinchen	£176 15 0
Neal	198 0 0	Cowley & Drake	158 6 3
Chappell	190 0 0	Cruwys	156 0 0
Callow	189 10 0	Marchant & Hirst	149 0 0
Salter	184 10 0	Eady	147 5 8

LONDON.—For exterior painting &c., of Canal-road Board School, for the School Board for London. Mr. T. J. Bailey, Architect:—

Craig	£229 0 0	Stevens Bros.	£121 10 0
Dove Bros.	164 0 0	Grover & Son	118 0 0
Corfield	135 0 0	Staines & Son	108 0 0
Gavin Bros.	126 12 8	Marchant & Hirst	99 0 0

LONDONDERRY.—For additions, &c., to St. Eugene's Schools, Rosemont. Mr. E. J. Toye, architect, Strand, Londonderry:—

McClelland & Co.	£425	R. Colhoun	£345
W. J. Maultsaid	355	D. Gillespie (accepted)	325

[All of Derry.]

LONG EATON (Notts).—Accepted for the erection of fourteen houses, Oak Leys- and Co-operative-streets (two contracts), for the Workingmen's Co-operative Society, Limited. Mr. E. R. Ridgway, architect, Main-street, Long Eaton:—
J. Bull, Long Eaton, Nottingham £2,297

LONGTOWN (Herefordshire).—Accepted for alterations and additions to class-room, Longtown Schools. Mr. G. H. Godsell, architect, Hereford:—
Pritchard £100

LUTTERWORTH.—For the supply of granite for nine months, for the Monk's Kirby Rural District Council. Mr. Thomas Henry, District Surveyor, Leire, Lutterworth:—

	per ton. s. d.		
Mount Sorrel Granite Co.	4 6	1½ in. granite at Stoney Stanton Quarry.	
Narb'ro and Enderby Granite Co.	5 1	,, ,,	Narboro Quarry.
Croft Granite Co.	4 6	,, ,,	Croft Quarry.
Enderby and Stoney Stanton Granite Co., Narboro*	4 5	,, ,,	Sapcote Quarry.
Griff Granite Co., near Nuneaton*	5 11	,, ,,	Shetton Wharf.
Ireland & Knight	6 8	,, ,,	,,
H. N. Tryer	6 0	,, ,,	,,
Judkins & Co., per F. Sutton	6 4	,, ,,	,,

* Accepted.

MANCHESTER.—Accepted at a schedule of prices for flagging Chester-road, Old Trafford, for the Stretford Urban District Council. Mr. H. Royle, C.E., Old Trafford, Manchester:—
Geo. Clarke, Manchester.

NEWPORT (Mon.).—For building new Presbyterian Church, Caerleon-road, Newport. Messrs. Wm. Graham, Hitchcox, & Co., architects, Newport:—

J. Linton	£2,799	A. Hazell	£2,647
T. G. Diamond	2,750	Jenkins	2,630
Jones & Son	2,747	Dyson Parfitt	2,525
C. Locke	2,695	A. E. Parfitt	2,490
Bambury	2,685	Pugh	2,485
Hughes	2,667	A. S. Morgan & Co.*	2,400
W. A. Linton	2,663	T. Prosser	2,100

* Accepted.

[All of Newport.]

OSWESTRY.—For the erection of six houses, and stables, Chapel-street, Oswestry. Mr. Frank H. Shayler, architect, Oswestry and Welshpool. Quantities by architect:—

Vaughan	£2,400 0	Evans & Felton	£2,132 16
Southern	2,285 18	W. H. Thomas	2,624 10

OXTED.—For detached villa residence and stabling at Oxted, Surrey. Mr. John Jas. Downes, architect, 11, The Parade, Lewisham High-road, S.E.:—
Longley & Co. ..... £1,895 0 | Lorden & Son £1,644 15

PEMBRIDGE (Herefordshire).—For alterations and additions to Byletts. Mr. G. H. Godsell, architect, Hereford:—

B. A. Hames	£261 18	J. J. Davis, Leominster*	£215 0

For the erection of a Bridge.

B. A. Hames	£115	J. J. Davis, Leominster*	£105

* Accepted.

PENARTH (South Wales).—For widening and improving the old highway known as Cwrt-y-Vil-road, for the Urban District Council. Mr. E. I. Evans, C.E., Council Offices, Penarth:—

Escott & Ford	£2,604 0 7	Hy. C. Parfitt	£1,585 0 0
Gardner & Happerfield	1,896 14 11	Thomas Rees	1,438 9 8
Frank Ashley	1,887 10 8	Mackay & Davies	1,383 8 3
Richard Smith	1,729 10 5	Barnes, Chaplin, & Co., Cardiff*	1,360 18 10

* Accepted.

PORTAN (Co. Meath).—For the erection of a residence, for Mr N. Delaney. Messrs. A. Scott & Son, architects, 16, William-street Drogheda:—

John Pigott	£1,250	Patrick Honway, Dublin*	£1,065
Patrick O'Brien	1,085	Nicholas Delaney	1,000

* Accepted.

[Stone, sand, lime, and brick supplied, and all cartage.]

PRESTEIGNE (Radnorshire).—Accepted at a schedule of prices for stripping and reroofing Boultibrooke Mansion. Mr. G. H. Godsell, architect, Hereford:—
Jas. Griffiths, Presteigne.

ROCHDALE.—For the erection of premises, for the Newbold Workmen's Club. Mr. Edward Sykes, Milnrow-road, Rochdale:—

Ashworth & Wolfenden	£412	J. & J. Coates	£400
Thomas Berry & Son	411	Thomas Marshall, Newbold, Rochdale*	339
Ashworth & Wolfenden †	406		

* Accepted. † Amended.

ROCHFORT BRIDGE.—For Rochfort Bridge Convent National Schools, Co. Westmeath, for Rev. Peter Fagan, P.P., Manager. Messrs. A. Scott & Son, architects:—

Lynam	£1,295	Thos. Reilly, Killincan*	£1,235

* Accepted.

[Stones and sand supplied.]

SMETHWICK.—For levelling, metalling, paving, &c., part of Grange-road, for the Urban District Council. Mr. J. C. Stuart, C.E., Public Buildings, Smethwick:—

Abel Cooper	£375 0 0	J. White, jun., Hands-worth (accepted)	£368 12 0
Currall & Lewis	374 6 8		

[Surveyor's estimate, £382.]

SOUTHAMPTON.—For the execution of improvement works, Brookvale-road, for the Corporation. Mr. W. B. G. Bennett, Borough Surveyor, Southampton:—

C. Dayth	£639	Crook & Batten*	£495
F. Osman	495		

[All of Southampton.]

* Recommended for acceptance.

SOUTHEND-ON-SEA.—Accepted for sewering and making new roadway on the Avenue Estate. Mr. Arthur T. A. Bowyer, surveyor, 90, Leadenhall-street, E.C.:—
William Buxton, Prittlewell £189

TAUNTON.—For additions to workhouse, for the Union Guardians. Mr. H. J. Spencer, architect, Taunton:—

Bath Room, &c.

G. Handford £105

Drying Closets and Appliances.

H. West £96

Fire Escapes.

H. West £54

[All of Taunton.]

THEYDON GARNON.—Revised tender for building Theydon Garnon Rectory. Messrs. Bailey & McConnell, architects, Walsall, Staffordshire :—
J. P. Groome £3,330

THIRSK.—For the erection of three warehouses, &c. Messrs. Hawe & Foley, architects, North Bar-street, Beverley. Quantities by architect :—
Hy. Greenlaw £663
C. K. Manfield, Sowerby, Thirsk (accepted) 645
[Architect's estimate, £695.]

THIRSK (Yorks.).—Accepted for the erection of Wesleyan church, Boltby. Mr. Thomas Stokes, architect, Thirsk. Quantities by the architect :—
Masonry.—J. C. Cornforth, Coxwold.....
Joinery.—H. Nicholson, Old Byland, Helmsley
Slating.—W. Dodgson, Thirsk .....
Plumbing.—J. W. Jackson, Thirsk £399 10 6
Painting.—J. Rutherford, Thirsk .....
Heating Apparatus.—Sheffield Warming Co., Sheffield .....

TODMORDEN.—Accepted for the erection of school buildings, Wadsworth, for the U. D. School Board. Mr. J. Horsfall, architect, Todmorden. Quantities by the architect :—
Masonry and Bricklaying.—Emanuel Riley, Hebden Bridge .....
Carpentry and Joinery.—Greenwood & Blackburn, Hebden Bridge .....
Slating and Plastering.—T. Wrigley & Sons, Hebden Bridge £1,958 10
Plumbing and Glazing.—S. Taylor, Hebden Bridge.....
Heating and Engineering.—J. Butterworth, Rochdale .....
Painting.—J. Horsfall, Hebden Bridge .....

UCKFIELD (Sussex).—For the construction of underground reservoir, &c., for the Water Company. Mr. John Lewis, C.E., New Shoreham, Sussex. Quantities by engineer :—
Peckham Bros., Church-street, Uckfield .....£173 4s. 3d.

WILLOUGHBY (Notts.).—For the erection of schoolmaster's house, and alterations to school, for the School Board. Mr. G. H Barrowcliff, architect, Mill-street, Loughborough :—

A. C. Bell	£849 0	W. Bailey	£759 5
Watson & Lovett	827 4	A. & S. Main	755 0
T. Barker & Son	825 0	A. Faulds, Loughborough*	740 0
W. F. Harding	811 7		
W. Moss & Son	810 0		

* Accepted subject to sanction of the Education Department.

WOOPERTON (Northumberland).—Accepted for alterations to farm buildings. Mr. G. Reavell, jun., architect :—
W. Allan Wooler £217 4 6

YATE (Near Bristol).—For repairs to the Chippingsodbury Union, Yate. Mr. W. Holbrow, surveyor, 6, St. Stephen's-avenue, Bristol :—

Powell & Fletcher	£223 0 0	J. Mills (accepted)	£159 18 6
W. Ridler	190 0 0	Ollis	140 0 0
Hawkins & Son	169 0 0		

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SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.
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*** Stamps *must not* be sent, but all small sums should be remitted by Cash in Registered Letter or by Postal Orders, payable to DOUGLAS FOURDRINIER, and addressed to the Publisher of "THE BUILDER," No. 46, Catherine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the front Page should be in by TWELVE noon on WEDNESDAY.

SPECIAL.—ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before 10 a.m. on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS Advertising in "The Builder," may have *Replies addressed to the Office, 46, Catherine-street, Covent Garden, W.C., free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

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READING CASES, { NINEPENCE EACH. By Post (carefully packed), 1s.

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J. L. F. (amounts should have been stated).

We are compelled to decline pointing out books and giving addresses.

NOTE.—**The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.**

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

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*4. Peterboro	*12. Gloucester	20. Worcester	*27. Ripon
*5. Wells	13. St. Paul's	21. Bangor and 22. St. Asaph	*28. Chester
*6. Exeter	14. Hereford		29. Manchester
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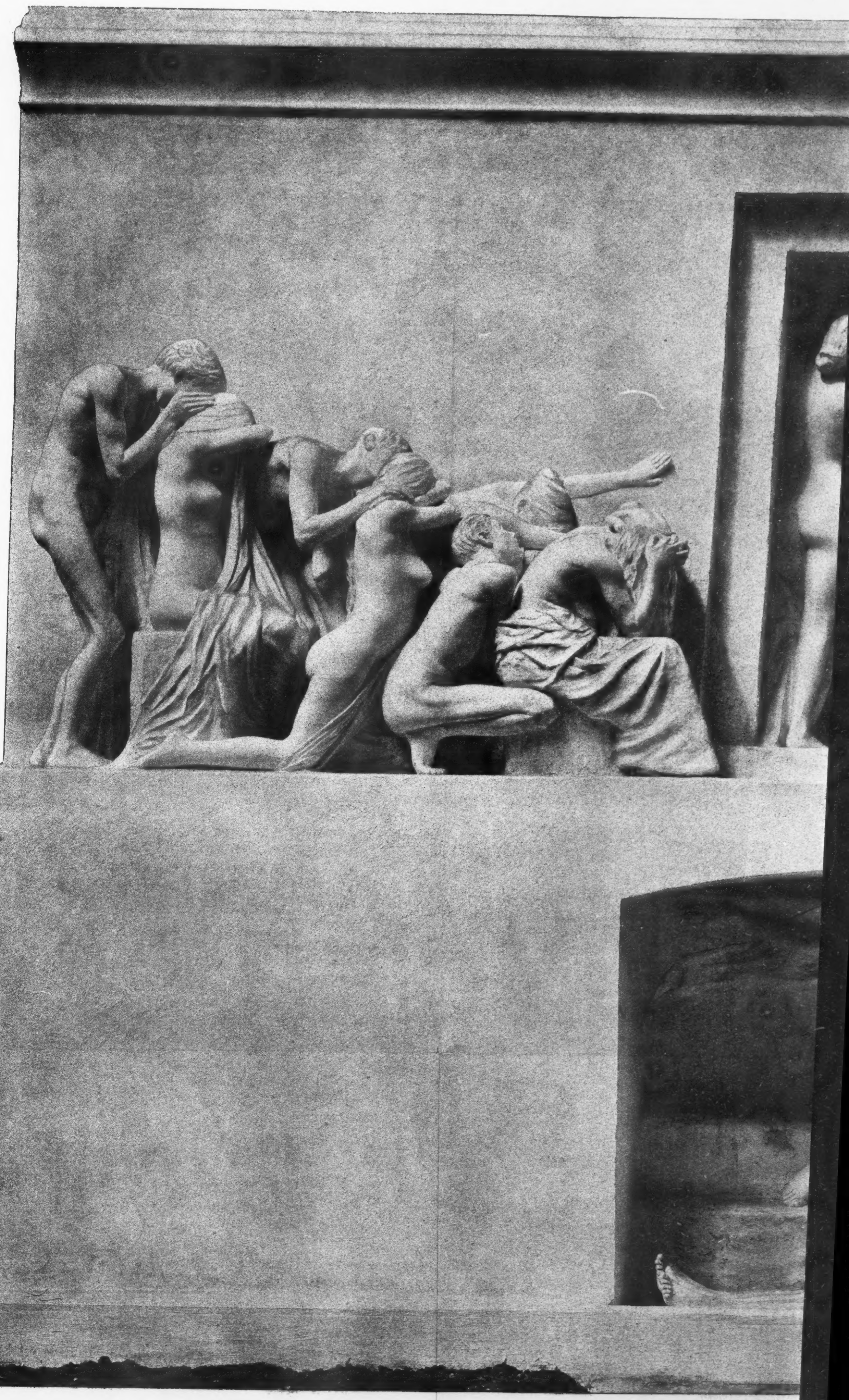

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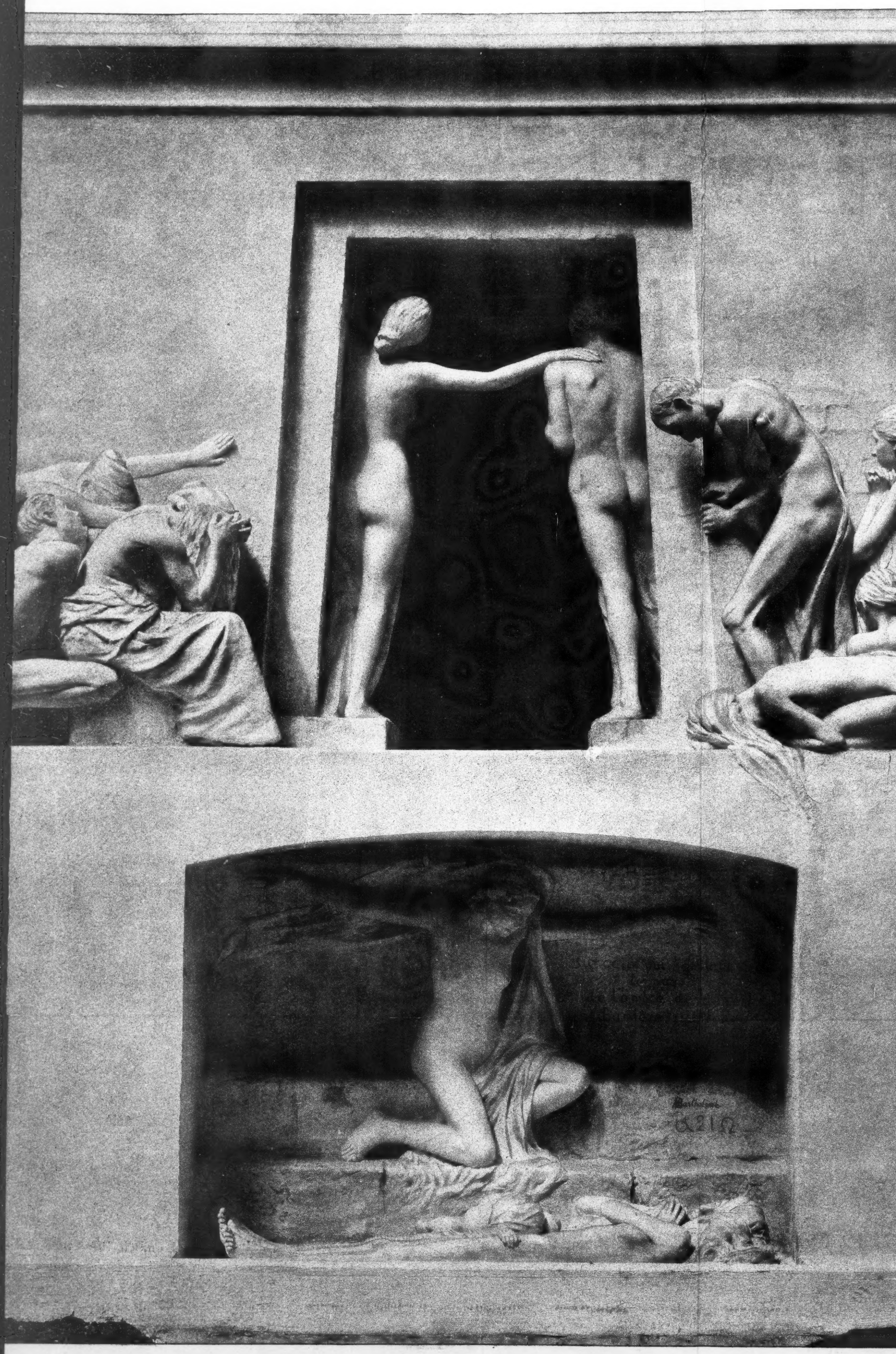

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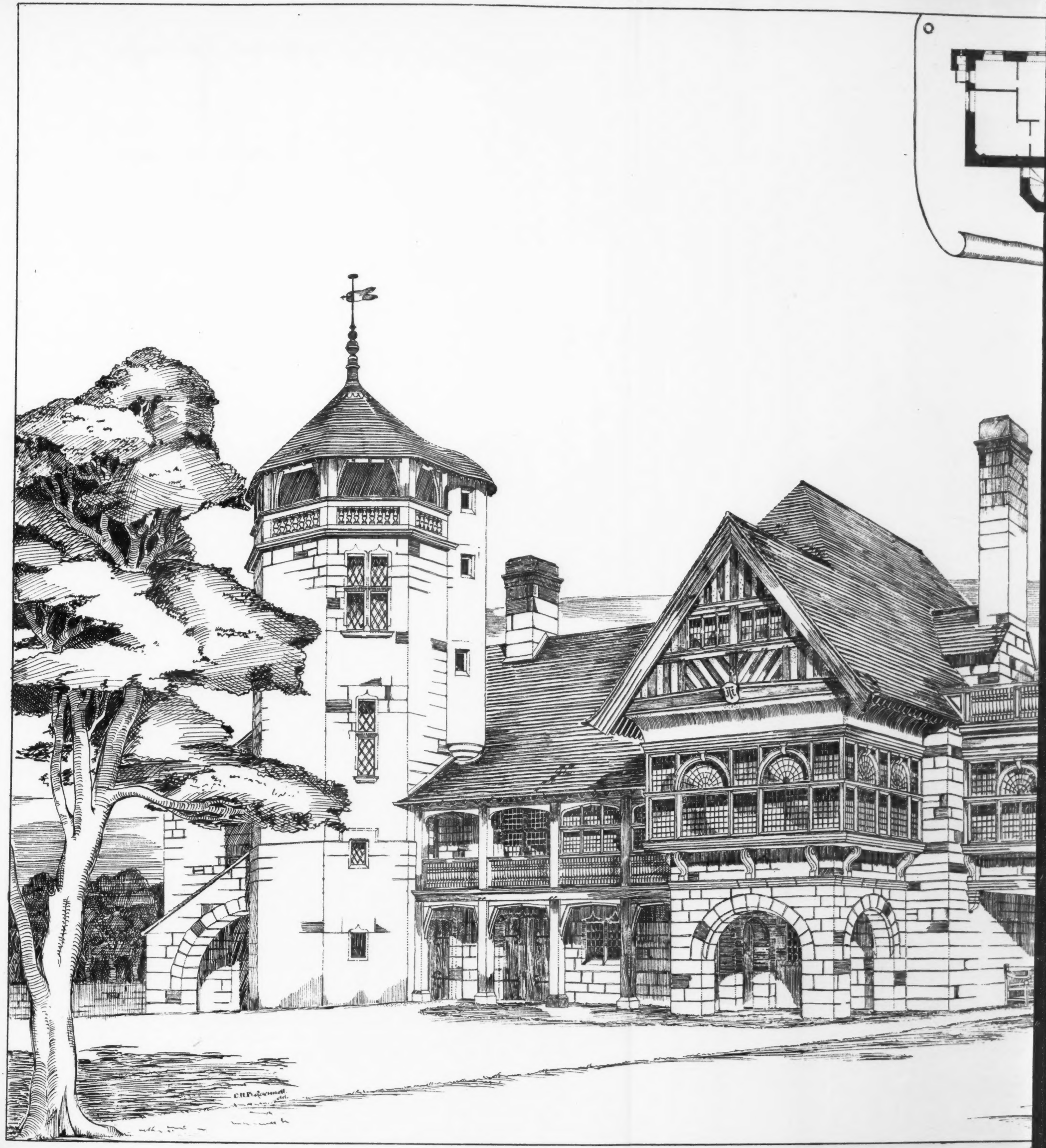

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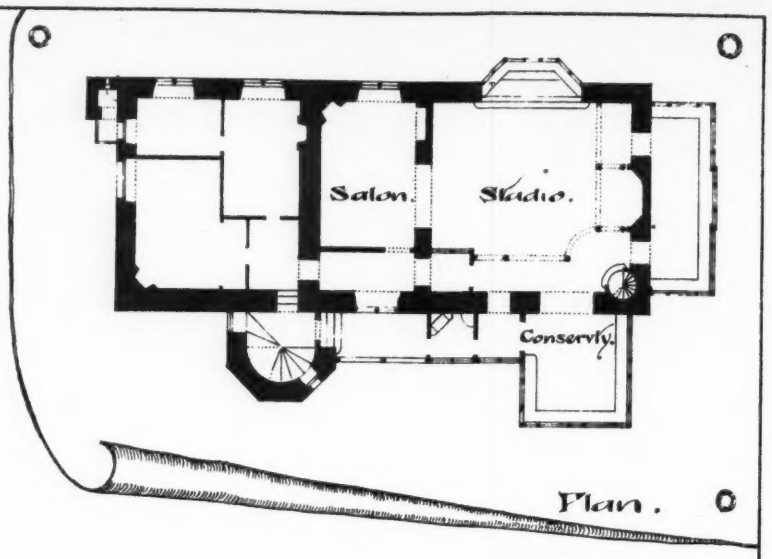

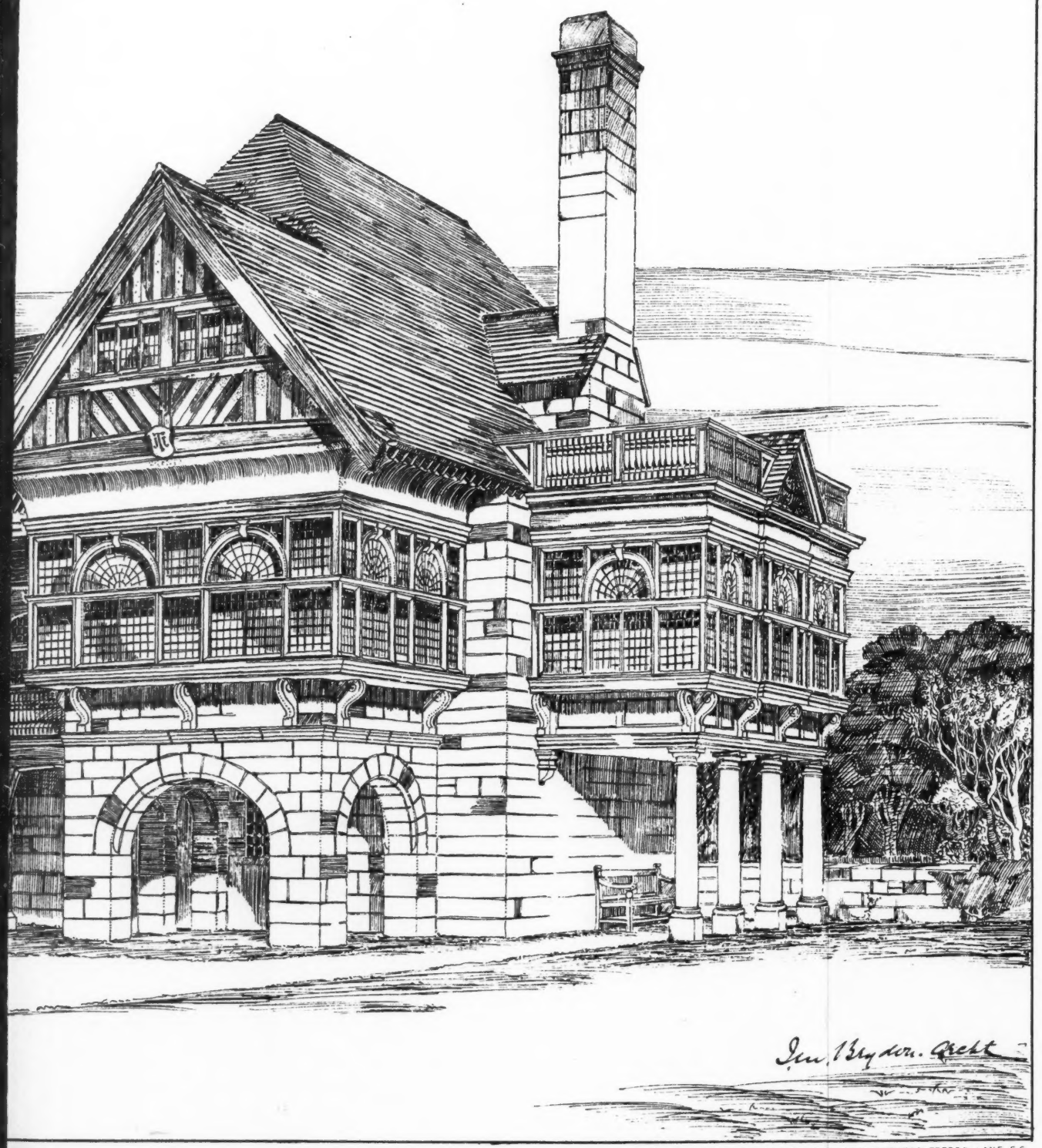

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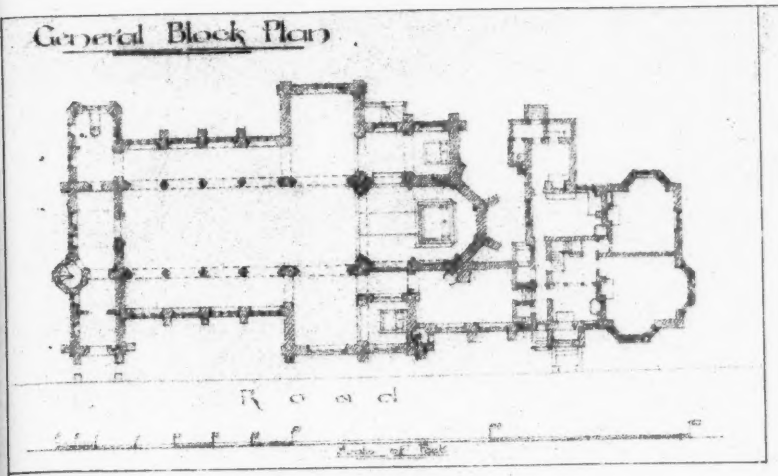

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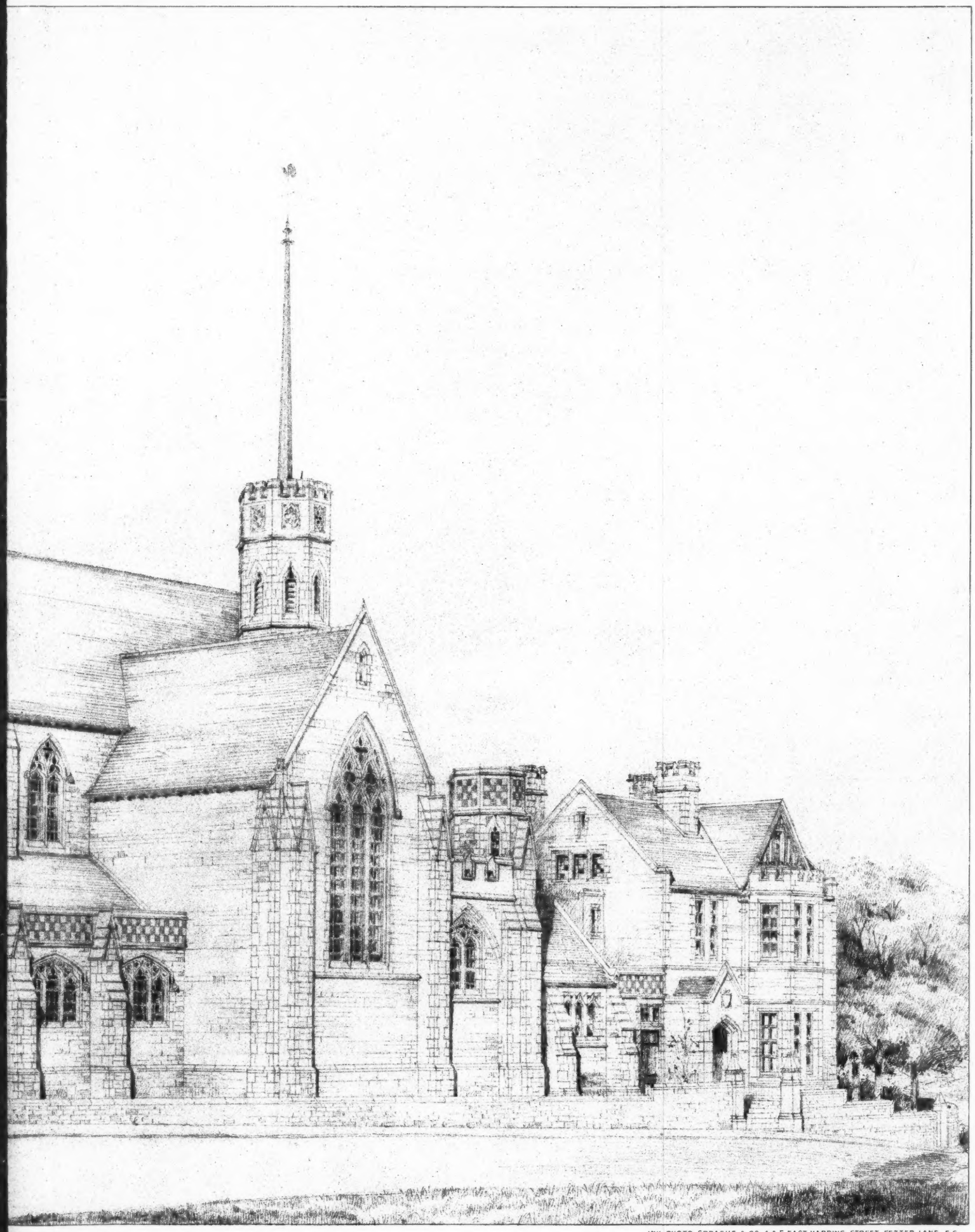

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